
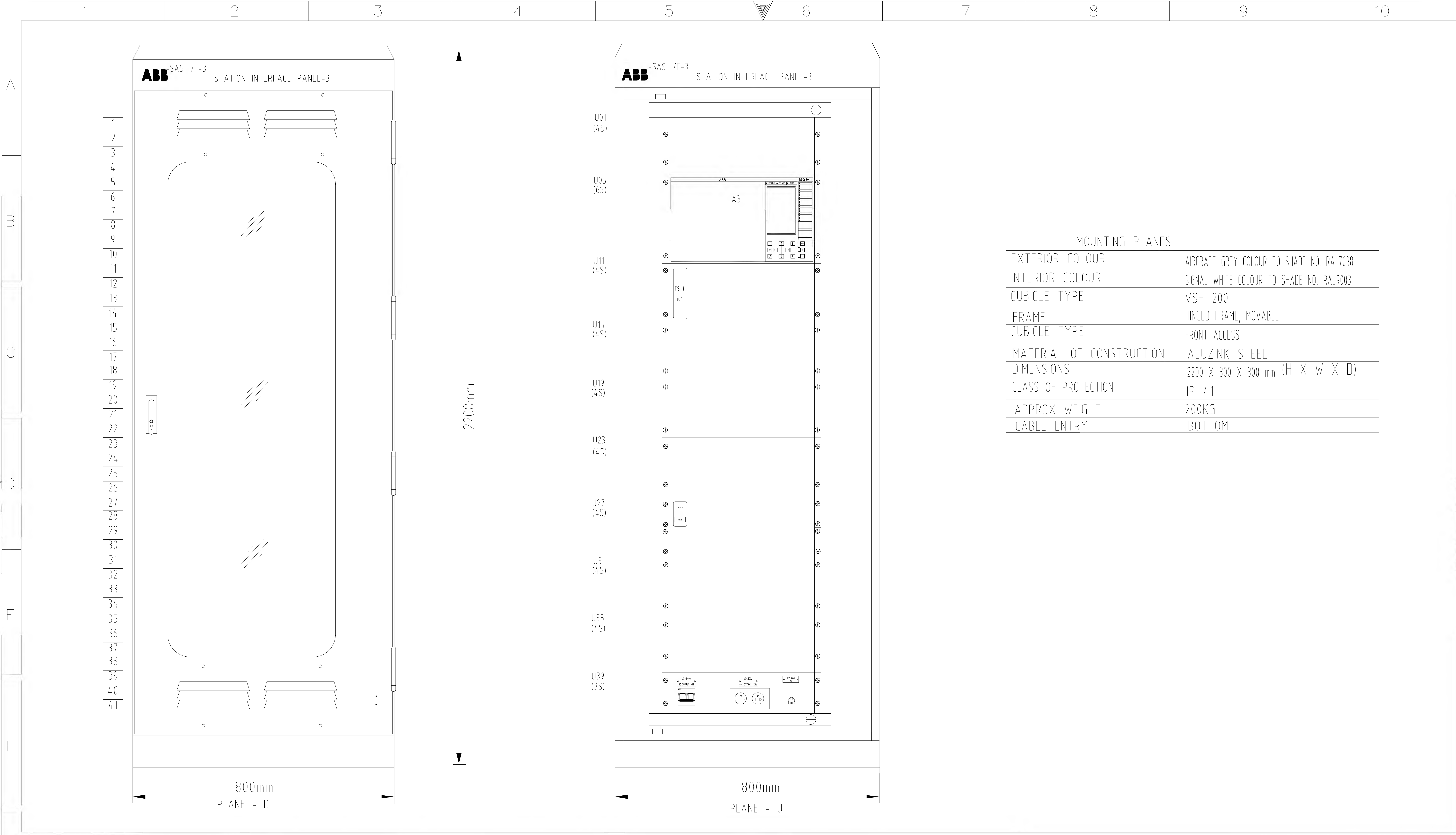


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DRAWN BY RIZ CHECKED BY JKR
DATE STARTED 15.3.2013 DATE COMPLETED _____
OPRG. DEPT. CTPD ENG. DEPT. AUT-PSAC

ASSEMBLY DRAWING

SAS INTERFACE PANEL +SAS I/F-3

S/S 8709

S-13656

RIYADH

SAUDI ARABIA

الشركة الوطنية لنقل الكهرباء



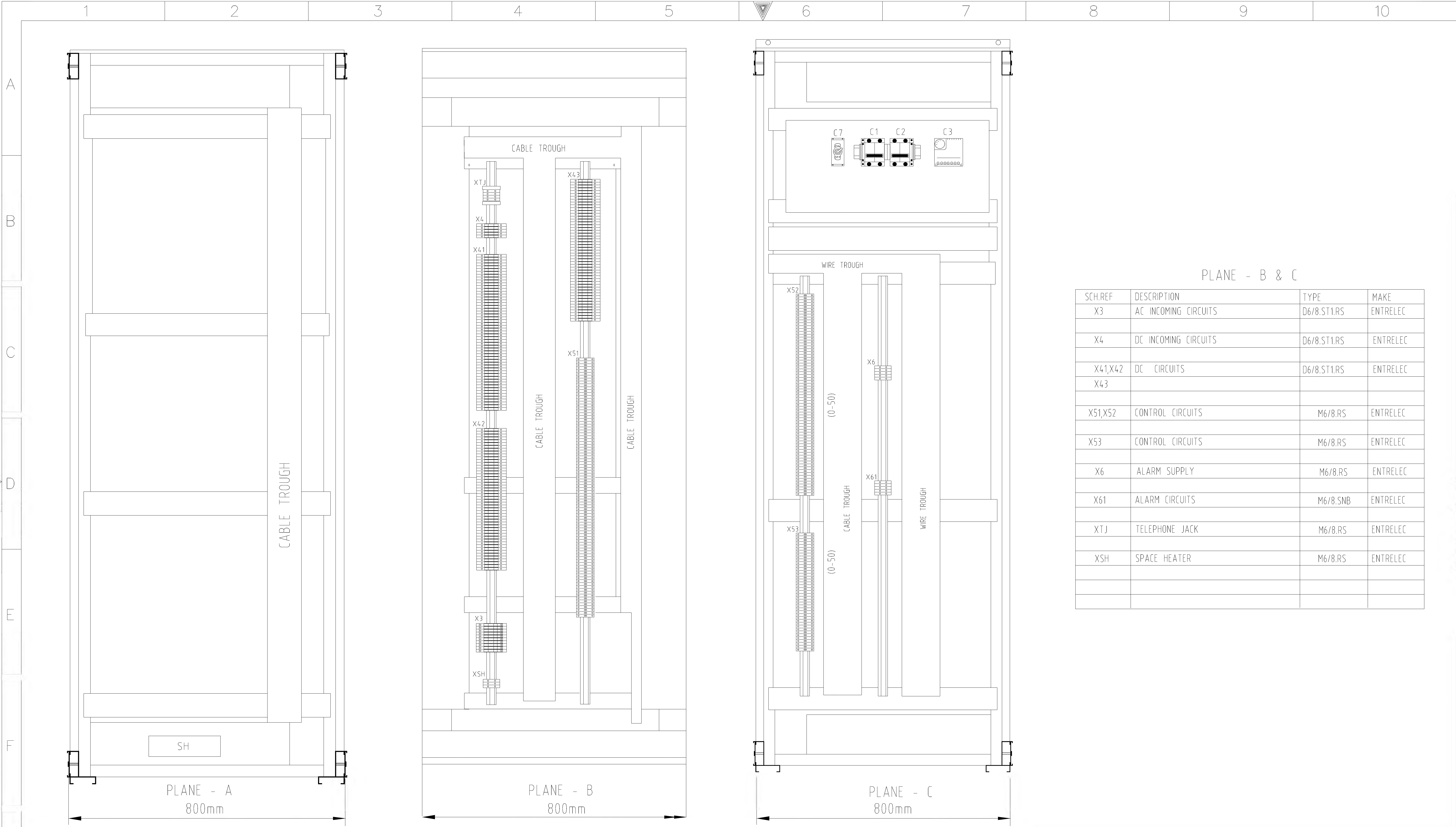
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			G01 G02	

NG/D2-D (2012/01)

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VECTOR

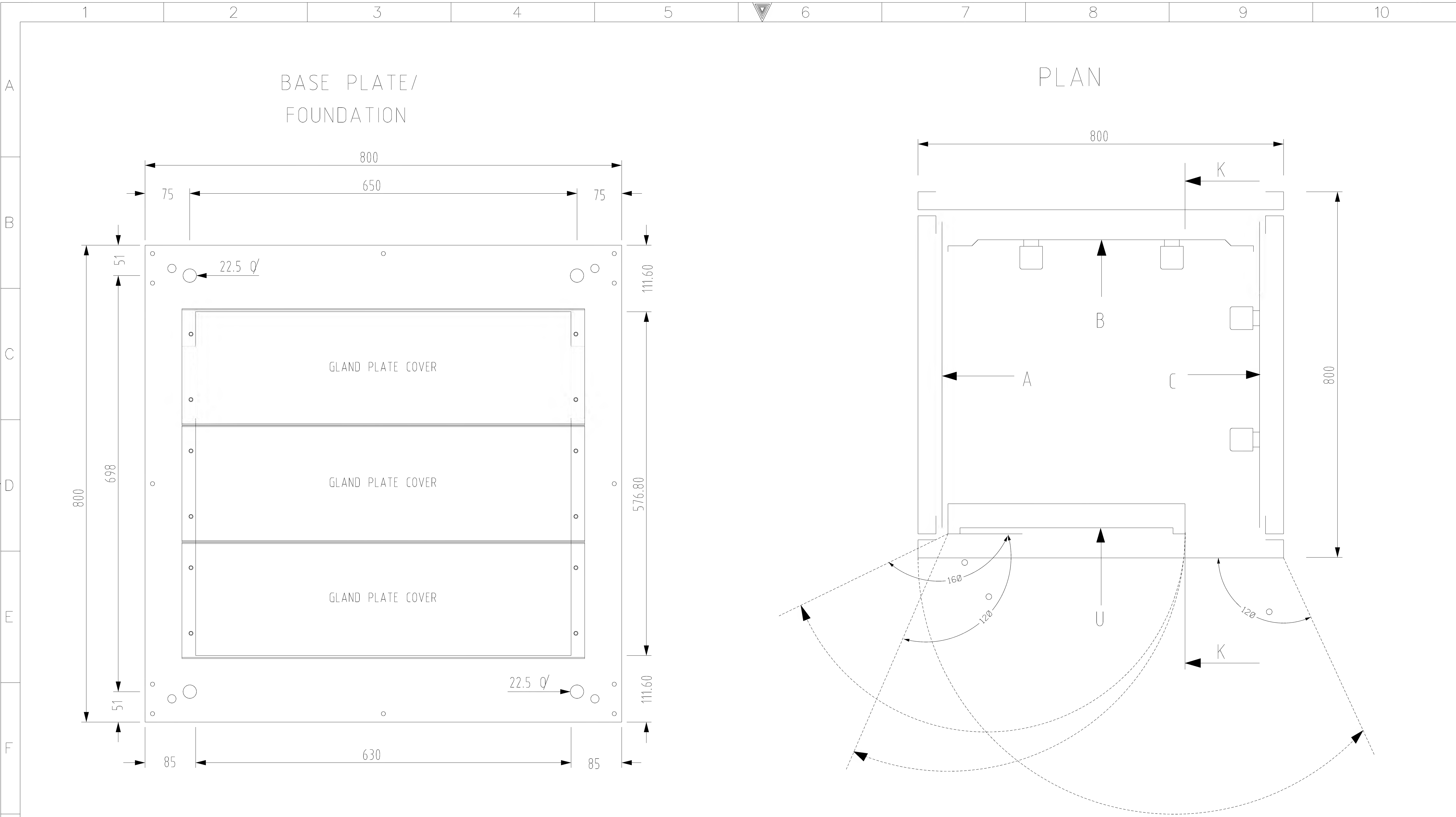
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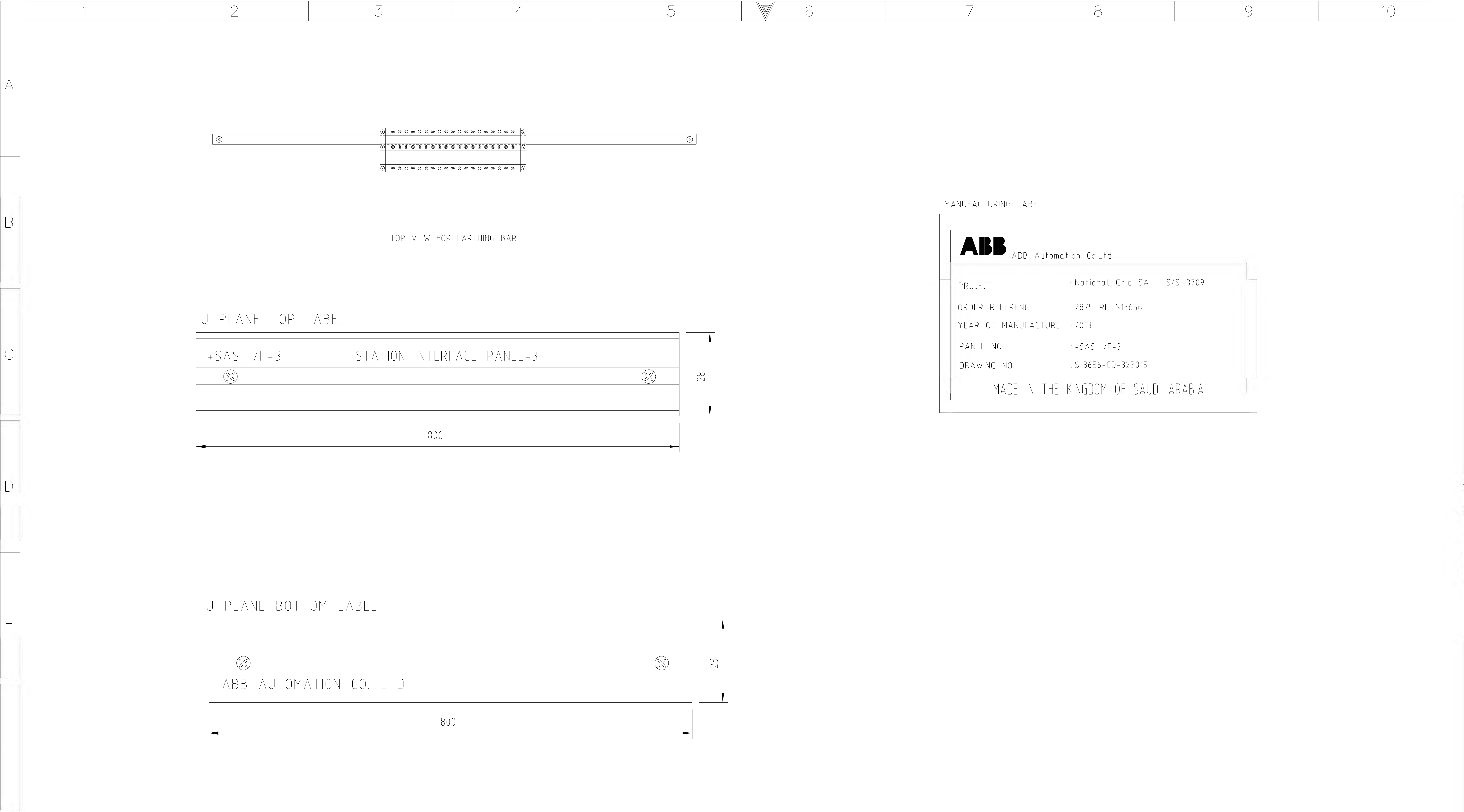
SCH.REF	DESCRIPTION	TYPE	MAKE
X3	AC INCOMING CIRCUITS	D6/8.ST1.RS	ENTRELEC
X4	DC INCOMING CIRCUITS	D6/8.ST1.RS	ENTRELEC
X41,X42	DC CIRCUITS	D6/8.ST1.RS	ENTRELEC
X43			
X51,X52	CONTROL CIRCUITS	M6/8.RS	ENTRELEC
X53	CONTROL CIRCUITS	M6/8.RS	ENTRELEC
X6	ALARM SUPPLY	M6/8.RS	ENTRELEC
X61	ALARM CIRCUITS	M6/8.SNB	ENTRELEC
XTJ	TELEPHONE JACK	M6/8.RS	ENTRELEC
XSH	SPACE HEATER	M6/8.RS	ENTRELEC

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	REV. NO.	DATE	DESCRIPTION		OPRG. DEPT. CTPD ENG. DEPT. AUT-PSAC		RIYADH SAUDI ARABIA		P	C421	CD-323014		G02	G03	01



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MANUFACTURING LABEL

ABB Automation Co.Ltd.

PROJECT

: National Grid SA - S/S 8709

ORDER REFERENCE

: 2875 RF S13656

YEAR OF MANUFACTURE

: 2013

PANEL NO.


: +SAS I/F-3

DRAWING NO.

: S13656-CD-323015

MADE IN THE KINGDOM OF SAUDI ARABIA

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NG/D2-D (2012/01)

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B	SR. NO.	GA REF.	SCH. REF.	D E S C R I P T I O N		SHEET NO.	QTY.	TYPE	MAKE	ORDERING INFORMATION	COUNTRY OF ORIGIN
				STATION INTERFACE PANEL-3							
	1	U05.5001	A3	STATION COMMON ALARM SWITCHING EQUIPMENT WITH FOLLOWING SPECIFICATION		291 TO 296	1	REC 670	ABB	1MRK 002814-AC	SWEDEN
				AUX : EL=90-250V DC							
				FREQ : 50/60HZ							
C				BINARY INPUT : 14 NOS(PER CARD 16 INPUTS RL=110-125DC)							
	2	U11.101	TS-1	TEST SWITCH FOR REC 670 (A3)		245	1	RTXP18	ABB	RK 926 115-AN	SWEDEN
	3	U27.101	74IF	DUAL TARGET RELAY (REVERSE FLAG) (A1 DC FAIL/SPARE)		245	1	RXSF1	ABB	RK 271 019 AN	SWEDEN
				CONTACTS :1NO+2NC PER COIL							
				AUX.VOLT :1NO+2NC PER COIL							
D				FLAG :SELF RESET							
	4			MCB 2 POLE 6A, FOR DC SUPPLY WITH 2NC AUXILIARY CONTACT		216	1	S 282 UC-K6 S2-H02	ABB	GH S282 0164 R0377 GH S270 1916 R0003	GERMANY
		U39.5001	Q1	Q1 IF+ SUPPLY							
	5	U39.5002	C01	CONVENIENCE OUTLET 10A, 127V AC		211	1	USM45 & USMS45	LEGRAND	74140 & 74180	FRANCE
			C02	CONVENIENCE OUTLET 10A, 220V AC							
E			C1,C2	MINIATURE CIRCUIT BREAKER, 2 POLE, 10A FOR CONVENIENCE OUTLET WITH AUXILIARY SWITCH, 1NO + 1NC CONTACTS		211	2	S202P-K10 S2C-H11L	ABB	2CDS 253 001 R0104 2CDS 200 936 R0001	GERMANY
	6		C3	THERMOSTAT FOR SPACE HEATER, 5-60 C		211	1	SK 3110	RITTAL	SK 3110	THIWAN
	7	U39.5003	TJ	TELEPHONE JACK 1GANG 4WIRE		211	1	EDF410	EDISON	EDF410	SWEDEN
	8		C7	ON/OFF SWITCH FOR SPACE HEATER		211	1	M2SS1-10B MCBH-10	ABB	1SFA 611 200 R1006 1SFA 611 605 R1101	
	9		DS	DOOR SWITCH FOR CONTROL OF CUBICLE INTERNAL ILLUMINATION LAMP		211	1	LS30P 13B02	ABB	1SBV 010213 R1202	SWEDEN
F	10			INTERNAL ILLUMINATION CUBICLE LAMP SUITABLE FOR 127V AC, 60Hz SUPPLY, 20W		211	1	T-4	SUNON	SP-20W	
	11		SH	SPACE HEATER, 150W, 120V, 60Hz		211	1	RICA	GRUPPO	1FZEK 006 C001	ITALY
G	AS-BUILT BY _____ DATE _____		CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		LIST OF APPARATUS				
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						P	C421	CD-323014		SHT L01	CONT. L02 01
						NG/D2-D (2012/01)					
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LABEL REF.	LABEL ENGRAVING	MATERIALS	ENGRAVING	LABEL SIZE	LETTER SIZE
U05.5001	U05.5001 A3	ALUMINUM PAPER FOIL	BLACK LETTERS	50X10mm	3mm
U11.101	U11.101 TS-1	ALUMINUM PAPER FOIL	BLACK LETTERS	50X10mm	3mm
U27.101	U27.101 74IF/SPARE	ALUMINUM PAPER FOIL	BLACK LETTERS	50X10mm	3mm

LABEL REF.	LABEL ENGRAVING	MATERIALS	ENGRAVING	LABEL SIZE	LETTER SIZE
C1	C1 127V AC SUPPLY MCB	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm
C2	C2 220V AC SUPPLY MCB	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm
C3	C3 THERMOSTAT	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm
C7	C7 ON/OFF SWITCH	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm
DS	DS DOOR SWITCH	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm
IL	IL ILLUMINATION LAMP	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm
SH	SH SPACE HEATER	TRAFOLITE	BLACK LETTERS ON WHITE BACKGROUND	50X15mm	4mm

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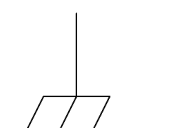
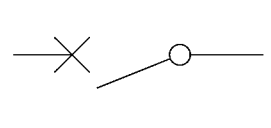
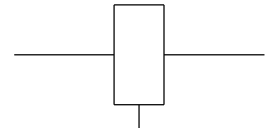
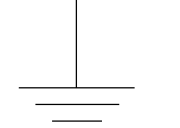
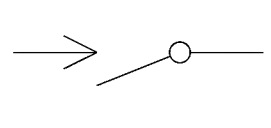
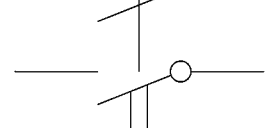
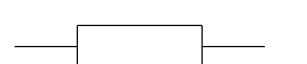
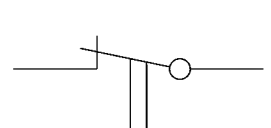
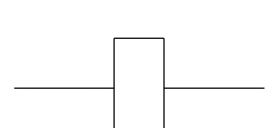
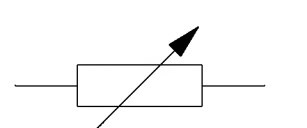
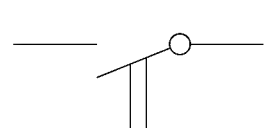
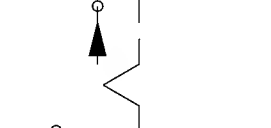
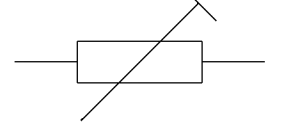

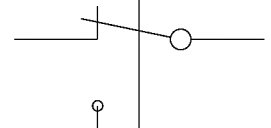


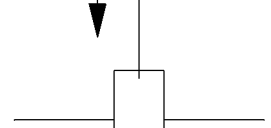
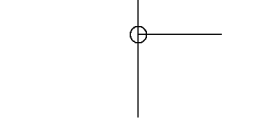
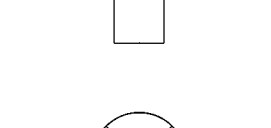
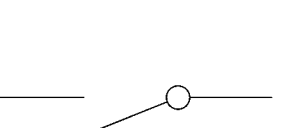
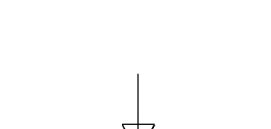
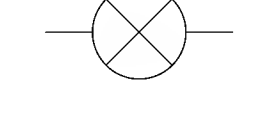
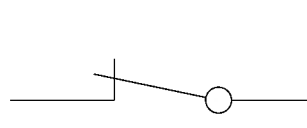
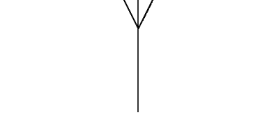
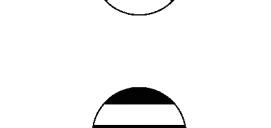
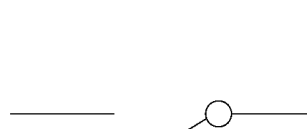


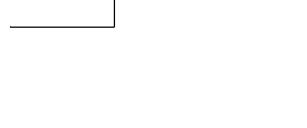
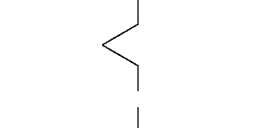
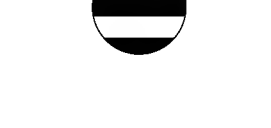
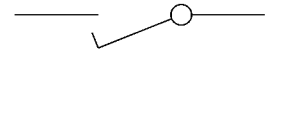
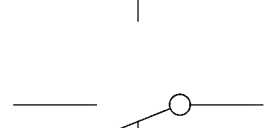
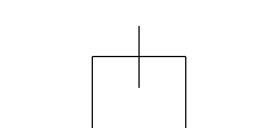
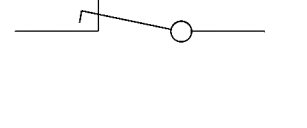
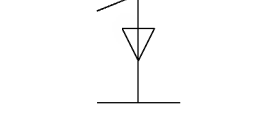
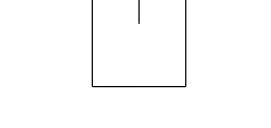
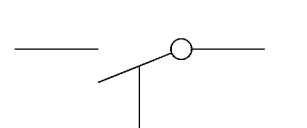
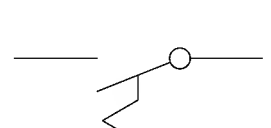
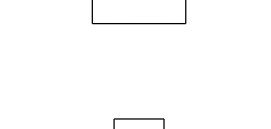
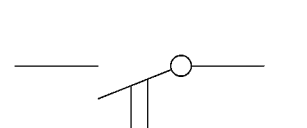
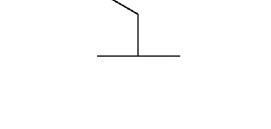
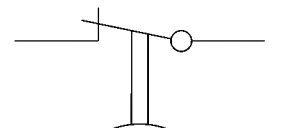
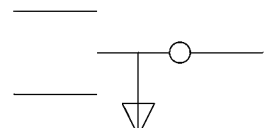
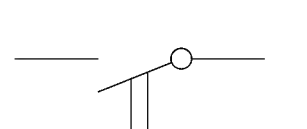
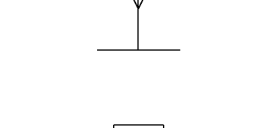
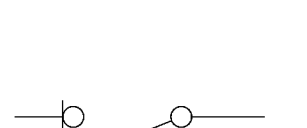
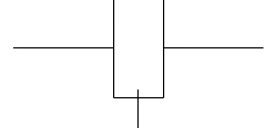
B

C

D

E

F

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	FRAME CONNECTION		MAIN CONTACT OF A CIRCUIT BREAKER		RELAY WITH TWO MAKE CONTACTS, ONE OF THEM DELAYED WHEN OPERATING
	EARTH CONNECTION		PASSING MAKE CONTACT CLOSING MOMENTARILY DURING OPERATION AND RELEASE		RELAY WITH TWO ACTUATORS AND A TWO STABLE POSITIONS
	RESISTOR		BREAK CONTACT DELAYED WHEN OPERATING		
	VARIABLE RESISTOR		MAKE CONTACT DELAYED WHEN RELEASING		SIGNALLING LAMP
	RESISTOR WITH PRESET ADJUSTMENT		TWO MECHANICAL LINKS CROSSING WITHOUT CONNECTION		MECHANICAL INDICATOR WITH AUTOMATIC RESET
	CAPACITOR		JUNCTION OF MECHANICAL LINKS		MECHANICAL INDICATOR WITH NON-AUTOMATIC RESET
	SEMICONDUCTOR DIODE USED AS A CAPACITIVE DEVICE		AUTOMATIC RESET		ELECTRICALLY CONTROLLED MECHANICAL INDICATOR WITH AUTOMATIC RESET
	OPEN CONTACT, MAKE CONTACT		NON-AUTOMATIC RESET		ELECTRICALLY CONTROLLED MECHANICAL INDICATOR WITH NON-AUTOMATIC RESET
	CLOSED CONTACT, BREAK CONTACT		SWITCHING DEVICE WITH MANUAL OPERATION AND WITH AUTOMATIC RESET		RELAY WITH MAKE CONTACT
	CHANGE-OVER CONTACT, BREAK BEFORE MAKE		SWITCHING DEVICE WITH MANUAL OPERATION AND WITH NON-AUTOMATIC RESET		RELAY WITH CHANGE-OVER CONTACT
	MAKE CONTACT WHICH IS EARLY WHEN OPERATING AND LATE WHEN RELEASING		CHANGE-OVER SWITCHING DEVICE WITH MANUAL CONTROL		RELAY WITH MAKE CONTACT, DELAYED WHEN OPERATING
	BREAK CONTACT WHICH IS LATE WHEN OPERATING AND EARLY WHEN RELEASING		RELAY WITH MAKE CONTACT, DELAYED WHEN RELEASING		RELAY WITH MAKE CONTACT, DELAYED WHEN OPERATING AND RELEASING
	SWITCHING DEVICE WITH MANUAL CONTROL		RELAY WITH MAKE CONTACT, DELAYED WHEN RELEASING		BELL, BUZZER
	MAKE CONTACT DELAYED WHEN OPERATING		RELAY WITH MAKE CONTACT, DELAYED WHEN RELEASING		SIREN , HORN
	BREAK CONTACT DELAYED WHEN RELEASING		RELAY WITH MAKE CONTACT, DELAYED WHEN RELEASING		
	MAKE CONTACT DELAYED WHEN OPERATING AND RELEASING		RELAY WITH MAKE CONTACT, DELAYED WHEN RELEASING		
	MAIN CONTACT OF A SWITCH DISCONNECTOR		RELAY WITH MAKE CONTACT, DELAYED WHEN RELEASING		
	MAIN CONTACT OF A DISCONNECTOR		RELAY WITH MAKE CONTACT, DELAYED WHEN RELEASING		

AS-BUILT BY _____ DATE _____

CONTRACT NO. 11131113/00

JOB ORDER NO. S-13656

GRAPHICAL SYMBOLS FOR DIAGRAMS

0113 48AS MANUFACTURED

0013 20FOR APPROVAL

REV. NO. DATE DESCRIPTION

DRAWN BY NSK CHECKED BY JKR

DATE STARTED15.3.2013DATE COMPLETED _____

OPRG. DEPT. CTPD ENG. DEPT. AUT-PSAC

SAS INTERFACE PANEL +SAS I/F-3

S/S 8709S-13656

RIYADHSAUDI ARABIA

الشركة الوطنية لنقل الكهرباء

نقل الكهرباء

National Grid sa

INDEX

PLANT NO.

DRAWING NUMBER

SHEET NO.

REV. NO.

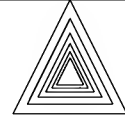
P

C421

CD-323015

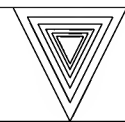
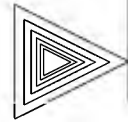
011012

01



	1	2	3	4	5	6	7	8	9	10
A										
B										
C										
D										
E										
F										

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	FUSE / LINK		WATTMETER		ELEMENT WITH NEGATED INHIBITING INPUT
	FUSE WITH THE SUPPLY SIDE INDICATED		VARMETER		ELEMENT WITH INPUT WHICH DOES NOT CARRY ANY LOGIC INFORMATION
	SINGLE-PHASE TRANSFORMER WITH TWO SEPARATE WINDINGS (TWO ALTERNATIVE FORMS)		POWER FACTOR METER		ELEMENT WITH POSTPONED OUTPUT
	SINGLE-PHASE TRANSFORMER WITH THREE SEPARATE WINDINGS (TWO ALTERNATIVE FORMS)		POSITION INDICATOR		AND-ELEMENT WITH TWO INPUTS
	SINGLE-PHASE TRANSFORMER WITH FERRO MAGNETIC CORE		SYNCHROSCOPE		OR-ELEMENT WITH TWO INPUTS
	SINGLE-PHASE VOLTAGE TRANSFORMER (MULTI-LINE AND SINGLE-LINE REPRESENTATION)		RECORDING VOLTMETER		LOGIC THRESHOLD ELEMENT WITH FOUR INPUTS AND THRESHOLD VALUE 2
	SINGLE-PHASE VOLTAGE TRANSFORMER WITH TWO SECONDARY WINDINGS (MULTI-LINE AND SINGLE-LINE REPRESENTATION)		RECORDING WATTMETER		ELEMENT WITH THREE INPUTS FOR "2 AND ONLY 2"
	CURRENT TRANSFORMER (MULTI-LINE AND SINGLE-LINE REPRESENTATION)		HOUR METER		EXCLUSIVE OR-ELEMENT WITH THREE INPUTS
	CURRENT TRANSFORMER WITH TWO CORES (MULTI-LINE AND SINGLE-LINE REPRESENTATION)		WATT-HOUR METER		LOGIC IDENTITY ELEMENT WITH THREE INPUTS
	CURRENT TRANSFORMER WITH TWO SECONDARY WINDINGS ON ONE CORE (MULTI-LINE AND SINGLE-LINE REPRESENTATION)		WATT-HOUR METER FOR ENERGY FROM A BUSBAR SYSTEM		MAJORITY ELEMENT WITH THREE INPUTS
	FILTER		ELEMENT WITH STATIC INPUT		NEGATOR
	HIGH-PASS FILTER		ELEMENT WITH STATIC NEGATED INPUT		NAND ELEMENT WITH TWO INPUTS
	BAND-PASS FILTER		ELEMENT WITH STATIC NEGATED OUTPUT		NOR ELEMENT WITH TWO INPUTS
	VOLTMETER		ELEMENT WITH DYNAMIC INPUT		BISTABLE ELEMENT
	AMMETER		ELEMENT WITH DYNAMIC NEGATED INPUT		
			ELEMENT WITH INHIBITING INPUT		

	1	2	3	4	5		6	7	8	9	10
A											
B											
C											
	D										
E											
F											

LEGENDS

±R1	DC SUPPLY - MAIN PROTECTION
±R2	DC SUPPLY - SECONDARY PROTECTION
±R3	DC SUPPLY - BACK UP PROTECTION
±IT	DC SUPPLY - INTER TRIP
FL	DC SUPPLY - FLASHING CIRCUIT
BB RS±	DC SUPPLY - BUS BAR - PROTECTION RESET
BB CBF±/CBF±	DC SUPPLY - CBF PROTECTION
R	RESET BUS - ALARM SYSTEM
CR	CONTROL ROOM
ECC	ENERGY CONTROL CENTRE
LOCAL	THE LOCATION OF CONTROLLED DEVICE
REMOTE	ANY OTHER LOCATION NOT LOCAL
ON	CB NORMALLY OPEN AUXILIARY CONTACT
OFF	CB NORMALLY CLOSED AUXILIARY CONTACT
A	COMMON
T	TEST POSITION
S	SERVICE POSITION
CS	CLOSE IN SERVICE POSITION
CT	CLOSE IN TEST POSITION
LS	LOCAL SERVICE
LT	LOCAL TEST
LC	LOCAL CLOSE
LO	LOCAL OPEN
RO	REMOTE OPEN

NOTES

LABELS

WHITE LABEL WITH BLACK LETTERING WILL BE PROVIDED FOR ALL MOUNTED APPARATUS EQUIPMENT IDENTIFICATION AND FUNCTION REFERENCE LABEL WILL BE PROVIDED FOR FRONT MOUNTED EQUIPMENTS OF THE PANEL AND EQUIPMENT IDENTIFICATION LABEL WILL BE PROVIDED FOR INTERNALLY MOUNTED EQUIPMENTS

WIRING

PVC INSULATED 600V GRADE
2.5 SQ.mm. YELLOW COLOURED FOR CT CIRCUITS
2.5 SQ.mm. RE COLOURED FOR VT CIRCUITS
1.5 SQ.mm. GREY COLOURED FOR DC SUPPLY, SCADA AND CONTROL CIRCUITS
1.5 SQ.mm. BLUE COLOURED FOR COMMON ALARM SIGNALS
2.5 SQ.mm. BLACK COLOURED FOR AVC AND AC CIRCUITS
2.5 SQ.mm. YELLOW/GREEN COLOURED FOR EARTHING CONNECTIONS
FOLLOWING MARKERS SHALL BE PROVIDED ON FOLLOWING WIRES:
+ SIGN FOR DC + WIRE
- SIGN FOR DC - WIRE

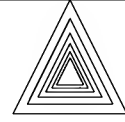
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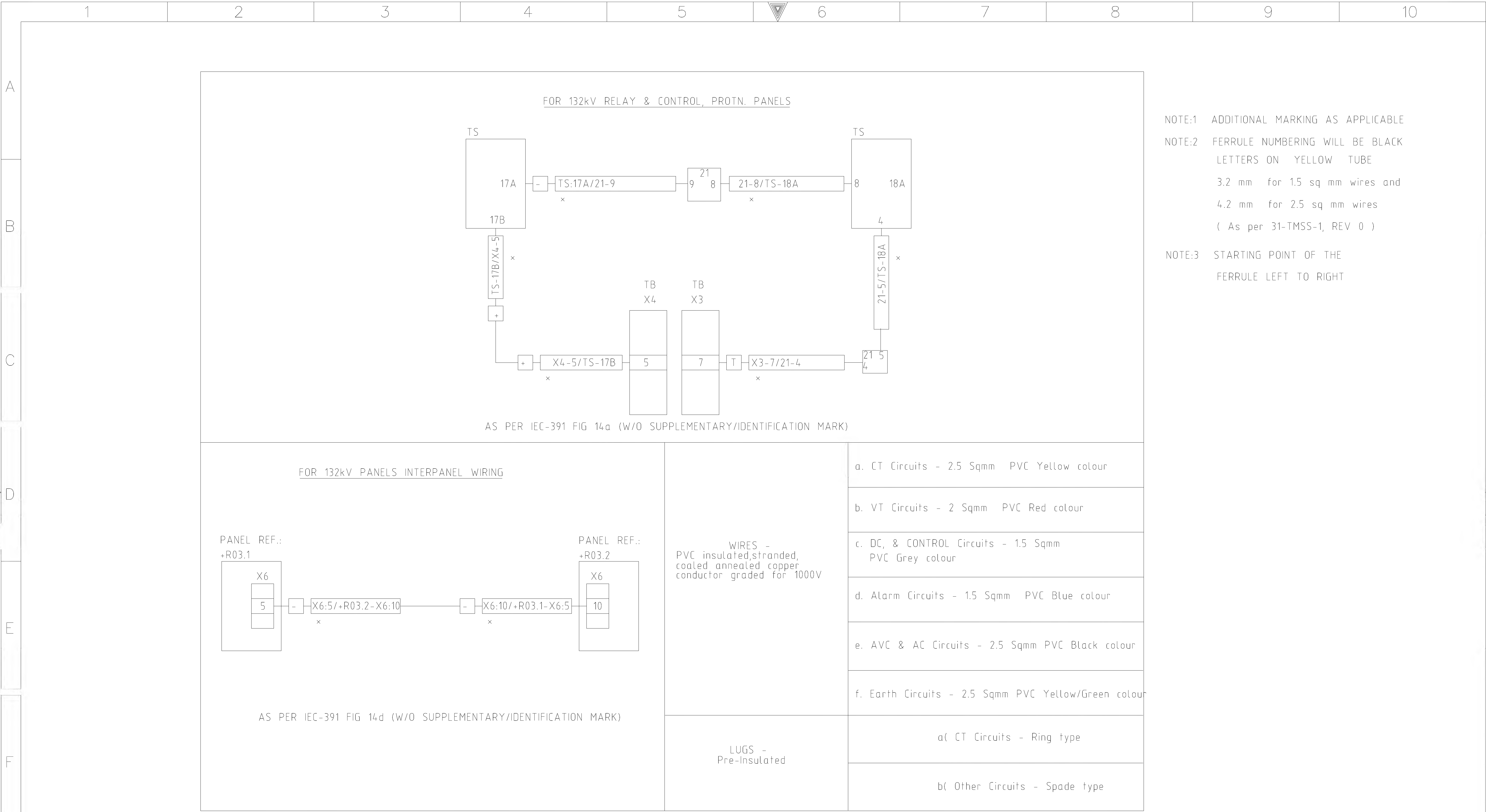
A. CT CIRCUITS- RING TYPE
B. OTHER CIRCUITS - SPADE TYPE

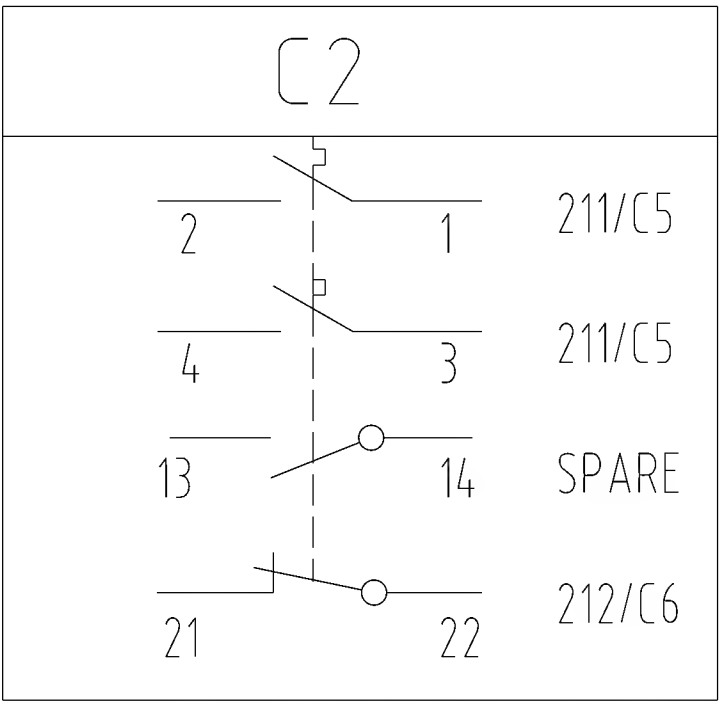
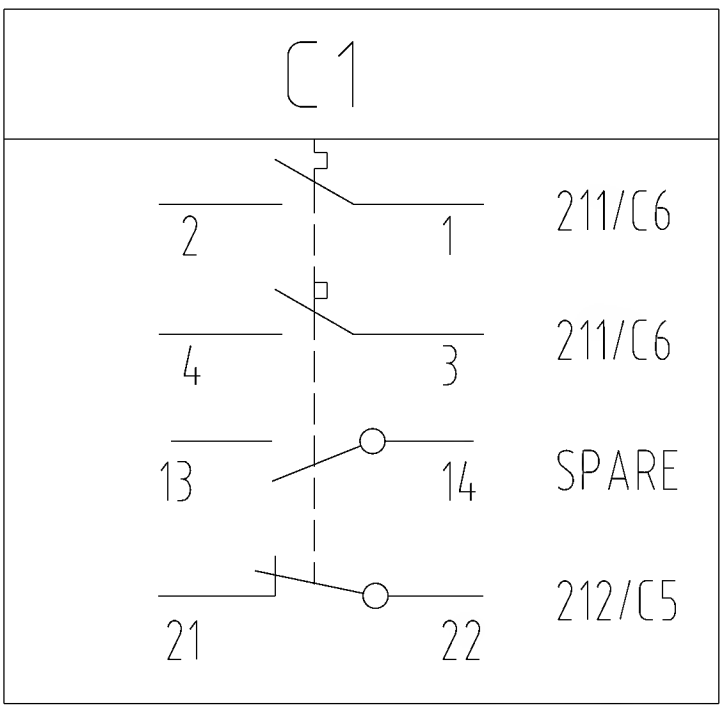
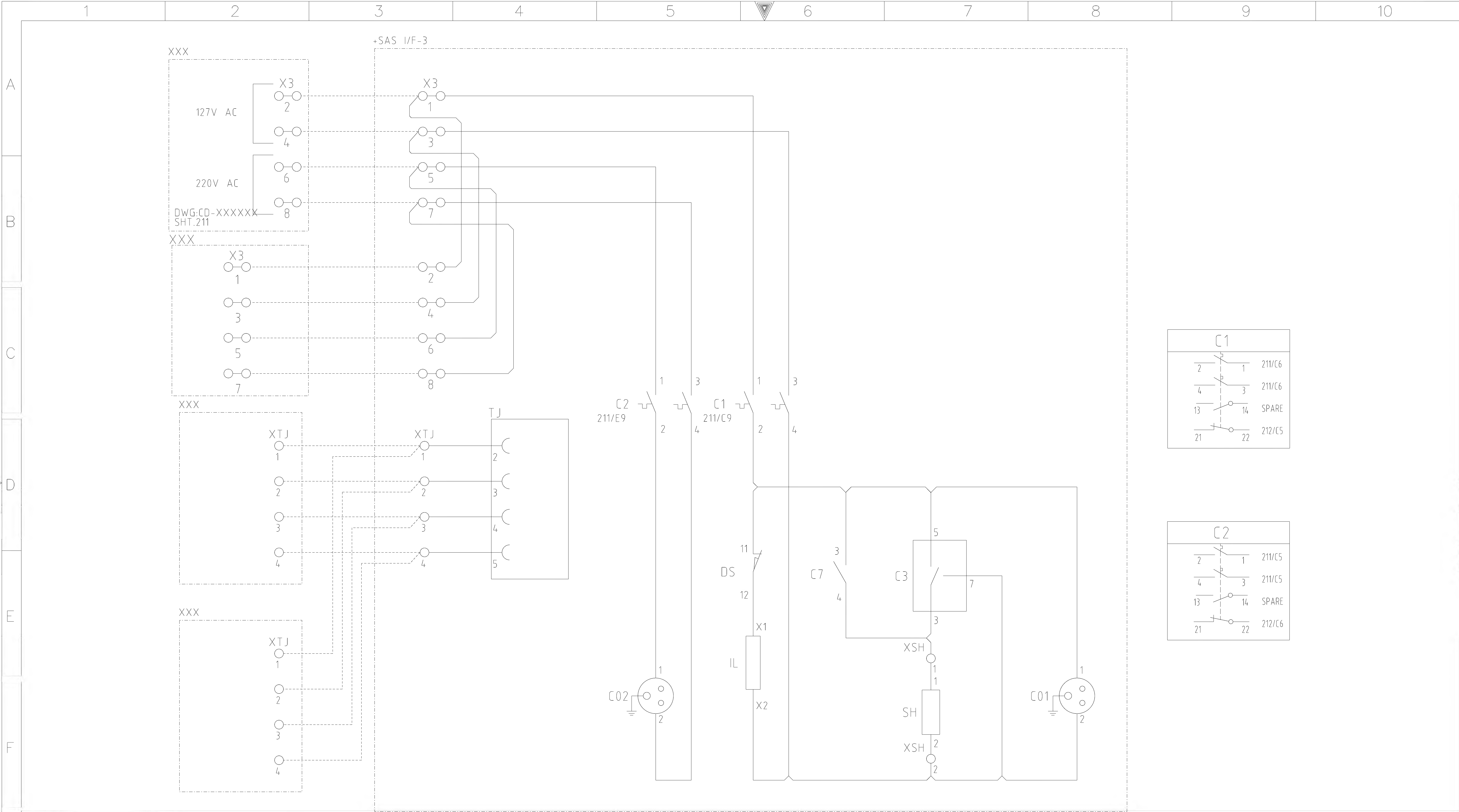
FERULLING

YELLO TUBE 3.2 mm FOR 1.5SQ mm WIRES AND 4.2 FOR 2.5 SQ mm WIRES (AS PER 31 - TMSS-1, RE.0)

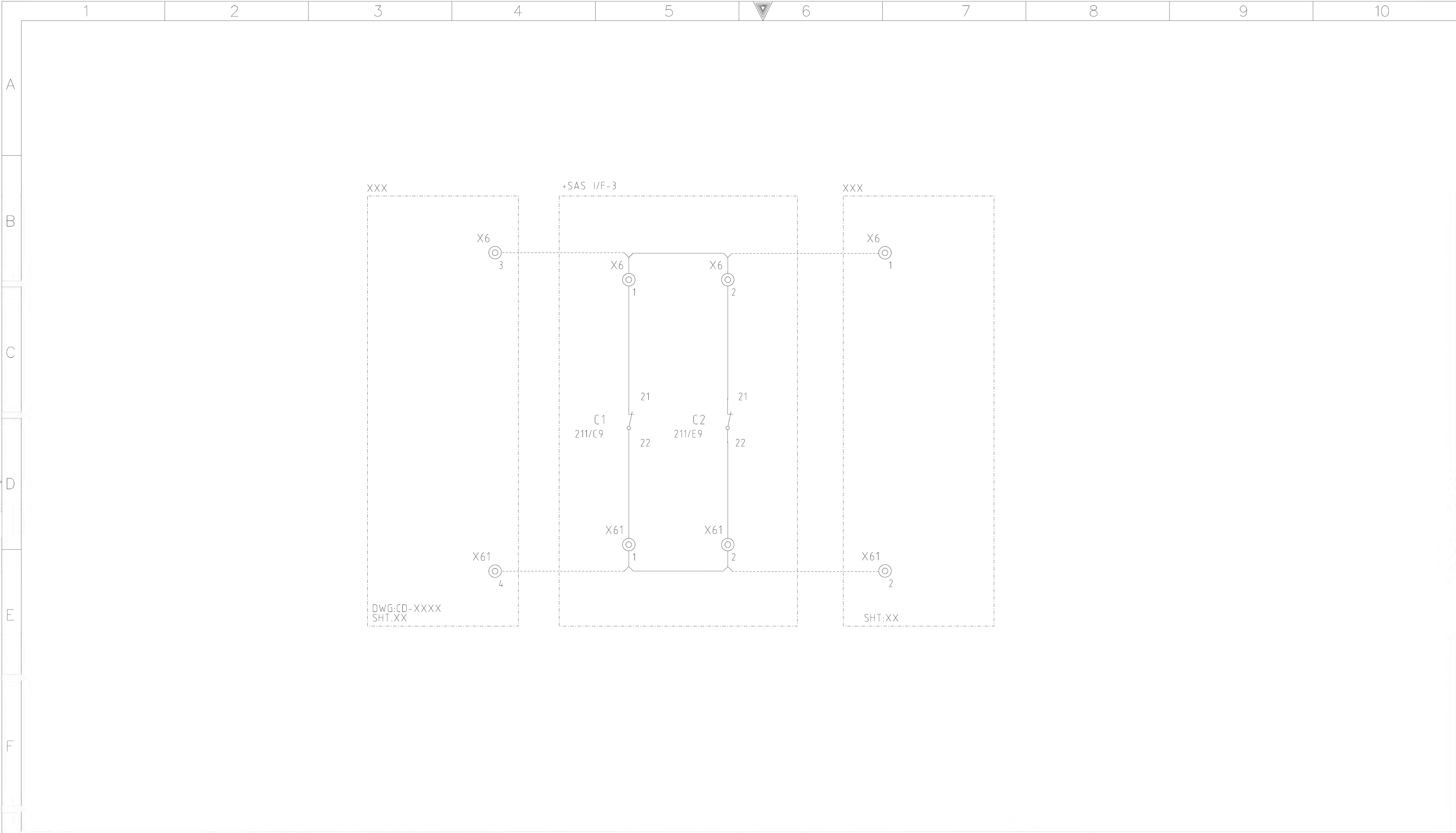
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				DRAWN BY _____ NSK _____ CHECKED BY _____ JKR	SAS INTERFACE PANEL +SAS I/F-3		INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.		REV. NO.
	01	13 48	AS MANUFACTURED	DATE STARTED 15.3.2013 DATE COMPLETED _____	S/S 8709 S-13656					SHT	CONT.	
	00	13 20	FOR APPROVAL	OPRG. DEPT. _____ CTPD _____ ENG. DEPT. _____ AUT-PSAC	RIYADH SAUDI ARABIA					013	014	
	REV. NO.	DATE	DESCRIPTION				P	C421	CD-323015			01




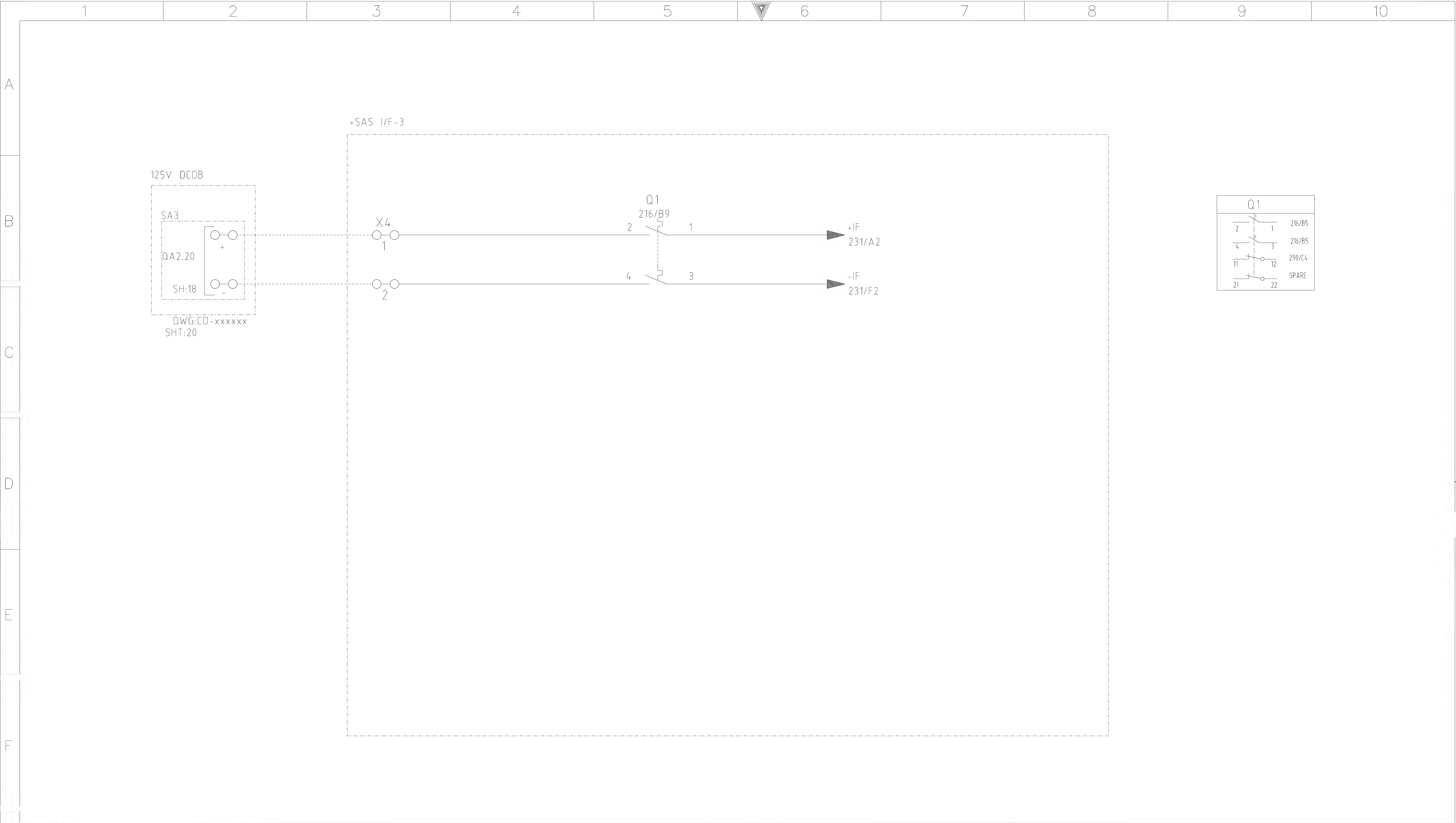




G	AS-BUILT BY _____ DATE _____		CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		AC SUPPLY FOR ILLUMINATION & POWER SOCKET		<div>الشركة الوطنية لنقل الكهرباء</div> <div>نقل الكهرباء</div> <div>National Grid sa</div>					
	01	13 48	AS MANUFACTURED		DRAWN BY _____ NSK _____ CHECKED BY _____ JKR		SAS INTERFACE PANEL +SAS I/F-3							
	00	13 20	FOR APPROVAL		DATE STARTED 15.3.2013 DATE COMPLETED _____		S/S 8709 S-13656							
	REV. NO.	DATE	DESCRIPTION		OPRG. DEPT. _____ CTPD _____ ENG. DEPT. _____ AUT-PSAC		RIYADH SAUDI ARABIA		INDEX	PLANT NO.	DRAWING NUMBER		SHEET NO.	
								P	C421	CD-323015		SHT CONT.		01
												211	212	



AS-BUILT BY _____ DATE _____			CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		SUPPLY AUXILARY CONTACTS				<div>الشركة الوطنية لنقل الكهرباء</div> <div>نقل الكهرباء National Grid sa</div>				
G			DRAWN BY _____ NSK _____ CHECKED BY _____ JKR _____		SAS INTERFACE PANEL +SAS I/F-3										
	01	13 48	AS MANUFACTURED		DATE STARTED 15.3.2013 DATE COMPLETED _____		S/S 8709 S-13656								
	00	13 20	FOR APPROVAL		OPRG. DEPT. _____ CTPD _____ ENG. DEPT. _____ AUT-PSAC _____		RIYADH SAUDI ARABIA								
	REV. NO.	DATE	DESCRIPTION						INDEX	PLANT NO.	DRAWING NUMBER		SHEET NO.		REV. NO.
									P	C421	CD-323015		SHT	CONT.	01
											212		216		



AS-BUILT BY _____ DATE _____			CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		DC SUPPLY DISTRIBUTION		
01 13 48 AS MANUFACTURED			DRAWN BY NSK		CHECKED BY JKR		SAS INTERFACE PANEL +SAS I/F-3		
00 13 20 FOR APPROVAL			DATE STARTED 15.3.2013		DATE COMPLETED _____		S/S 8709 S-13656		
REV. NO. DATE DESCRIPTION			OPRG. DEPT. CTPD		ENG. DEPT. AUT-PSAC		RIYADH SAUDI ARABIA		

INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.		REV. NO.
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			216	231	



الشركة الوطنية لنقل الكهرباء

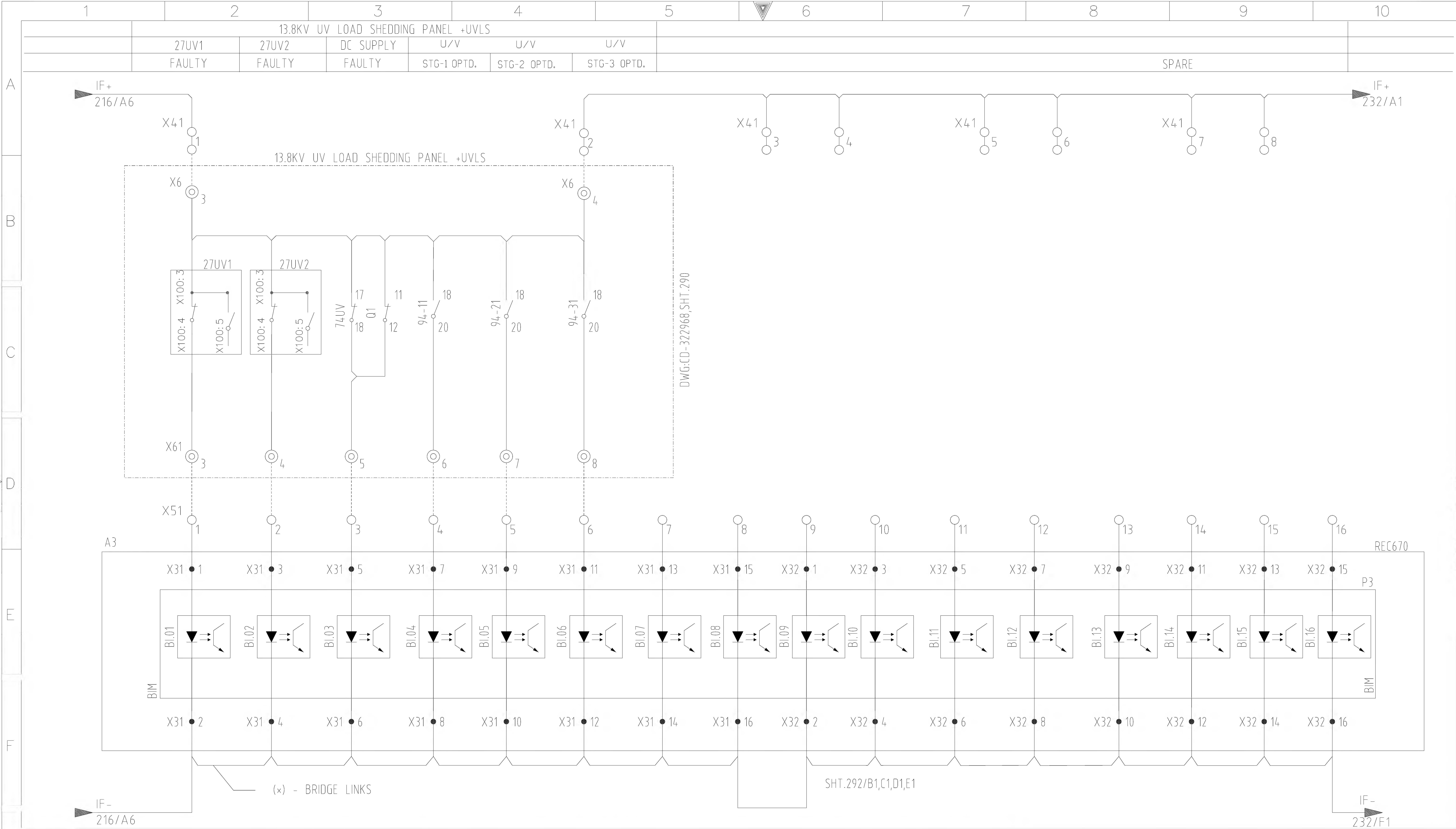
National Grid sa


NG/D2-D (2012/01)

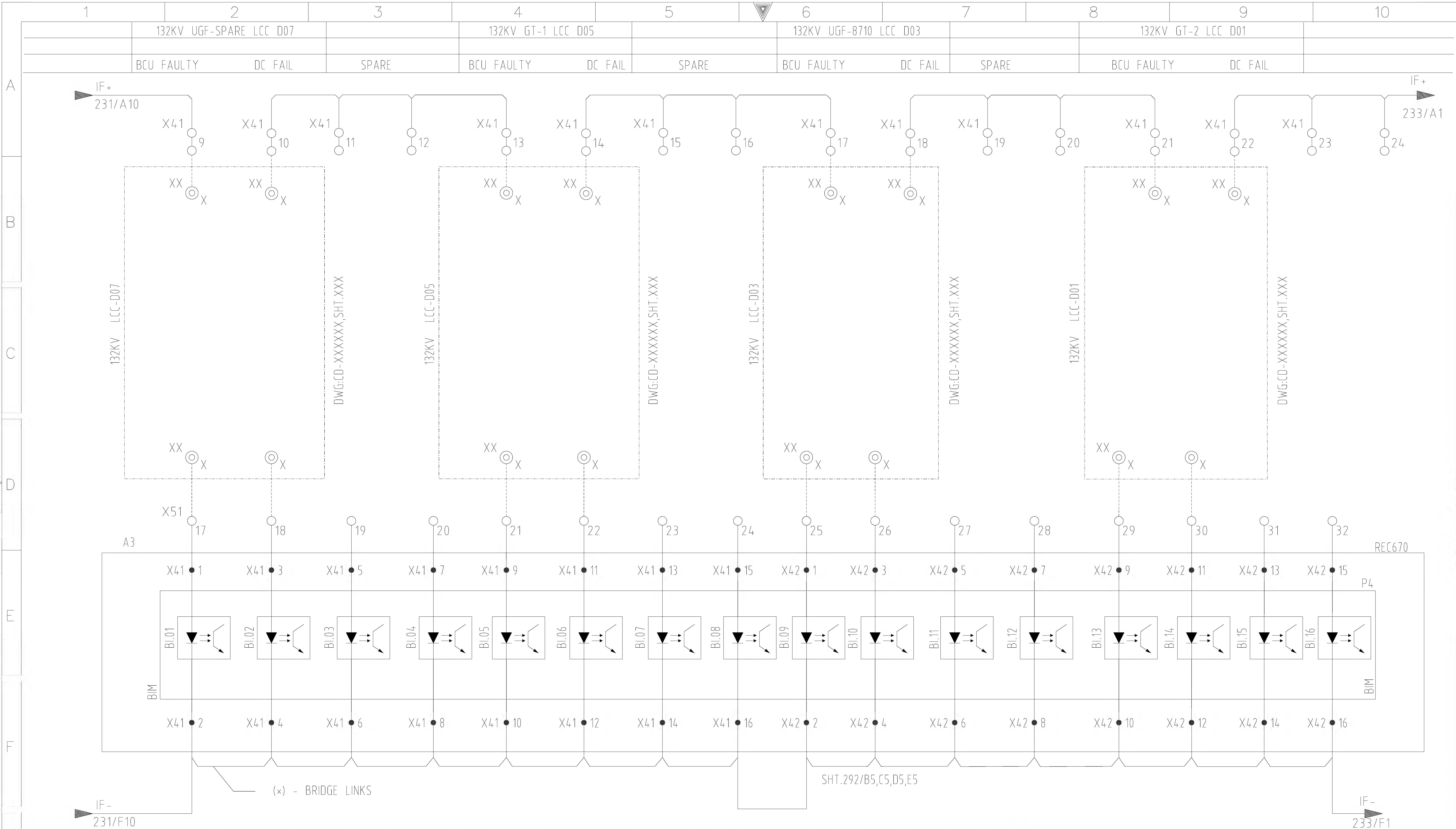
DMS

VECTOR

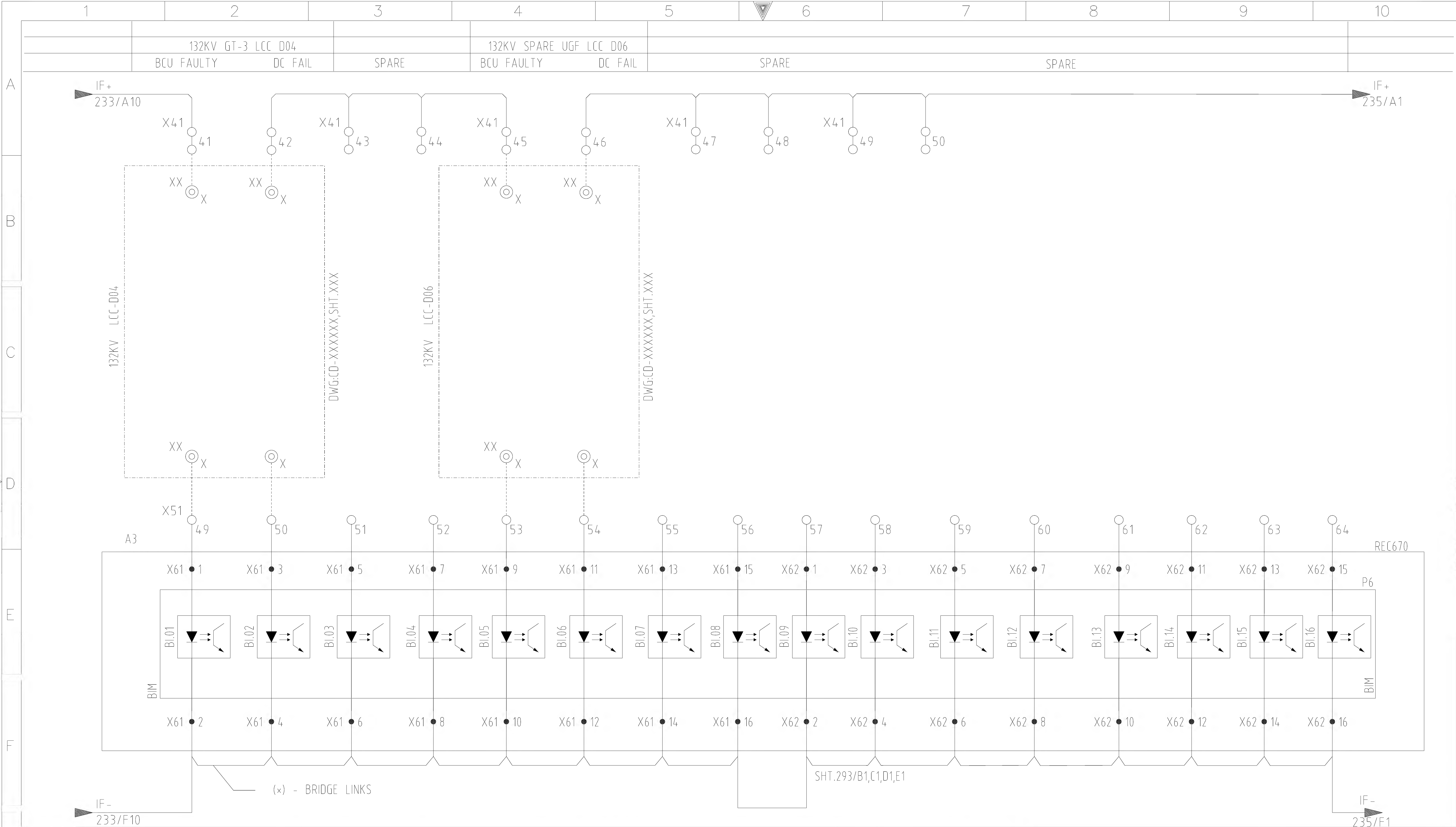
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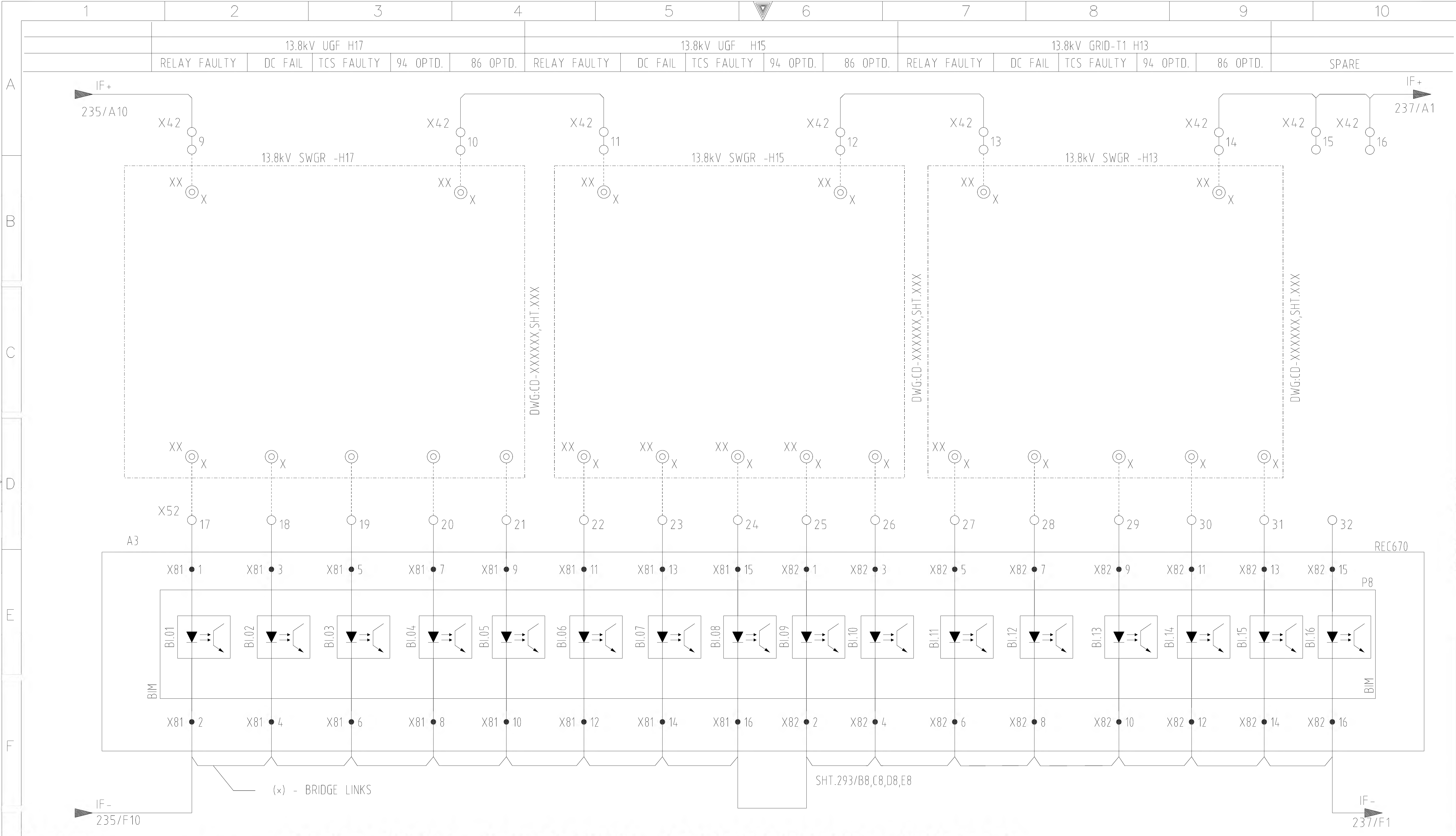
G	AS-BUILT BY _____ DATE _____		CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		STATION INTERFACE PANEL BINARY INPUTS				الشركة الوطنية لنقل الكهرباء				 نقل الكهرباء					
			DRAWN BY _____ NSK _____		CHECKED BY _____ JKR _____		SAS INTERFACE PANEL +SAS I/F-3				National Grid sa									
	01	13 48	AS MANUFACTURED		DATE STARTED 15.3.2013		DATE COMPLETED _____		S/S 8709		S-13656		INDEX	PLANT NO.	DRAWING NUMBER		SHEET NO.		REV. NO.	
	00	13 20	FOR APPROVAL		OPRG. DEPT. _____ CTPD _____		ENG. DEPT. _____ AUT-PSAC _____		RIYADH		SAUDI ARABIA		P	C421	CD-323015		SHT 231		CONT. 232	01
	REV. NO.	DATE	DESCRIPTION																	



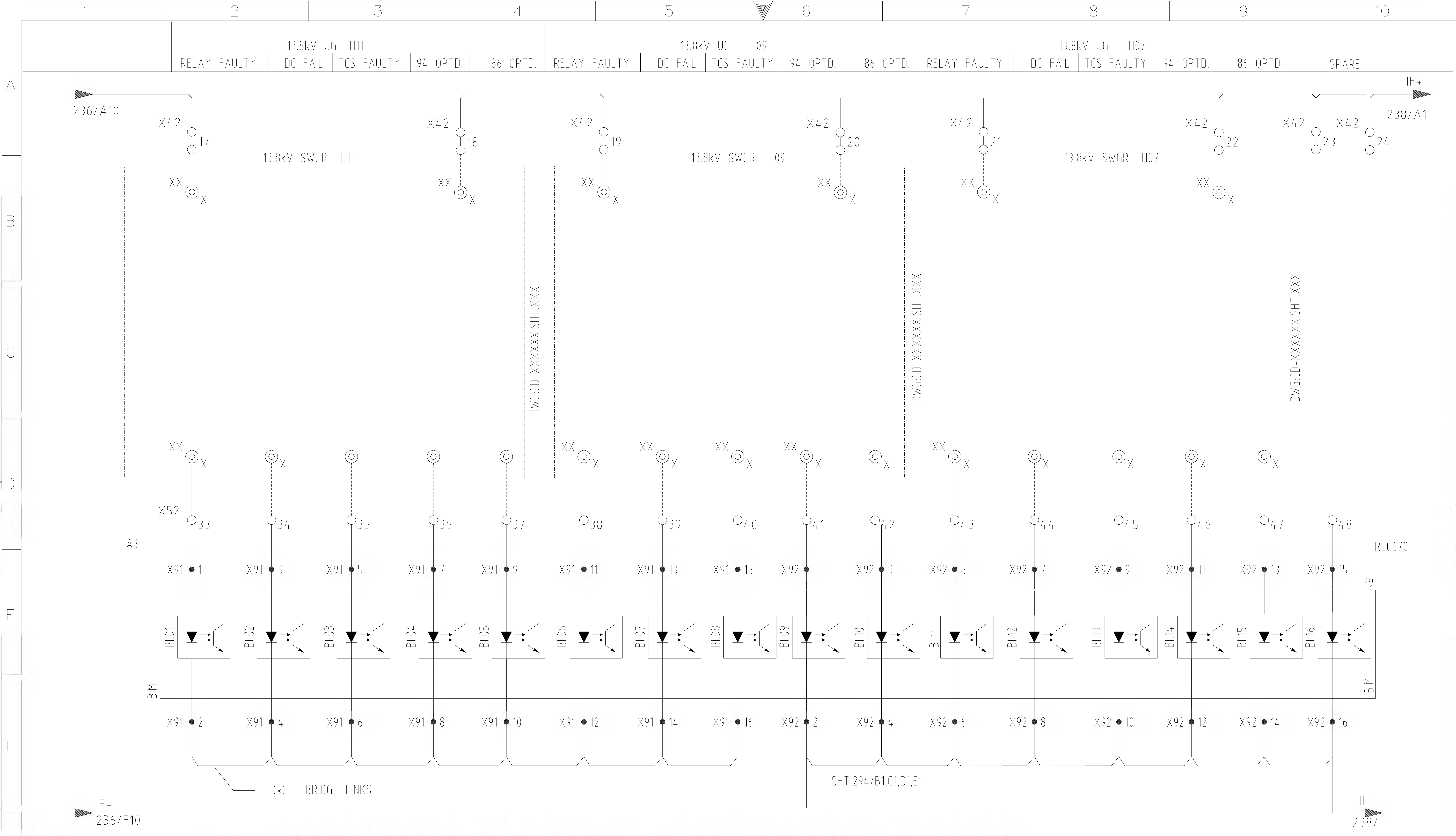
G	AS-BUILT BY _____ DATE _____		CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		STATION INTERFACE PANEL BINARY INPUTS				<div>الشركة الوطنية لنقل الكهرباء</div> <div>نقل الكهرباء</div> <div>National Grid sa</div>						
					DRAWN BY _____ NSK _____ CHECKED BY _____ JKR _____		SAS INTERFACE PANEL +SAS I/F-3										
	01	13 48	AS MANUFACTURED		DATE STARTED 15.3.2013 DATE COMPLETED _____		S/S 8709		S-13656		INDEX	PLANT NO.	DRAWING NUMBER		SHEET NO.		REV. NO.
	00	13 20	FOR APPROVAL		OPRG. DEPT. _____ CTPD _____ ENG. DEPT. _____ AUT-PSAC _____		RIYADH		SAUDI ARABIA		P	C421	CD-323015		SHT CONT.		01
	REV. NO.	DATE	DESCRIPTION												232	233	



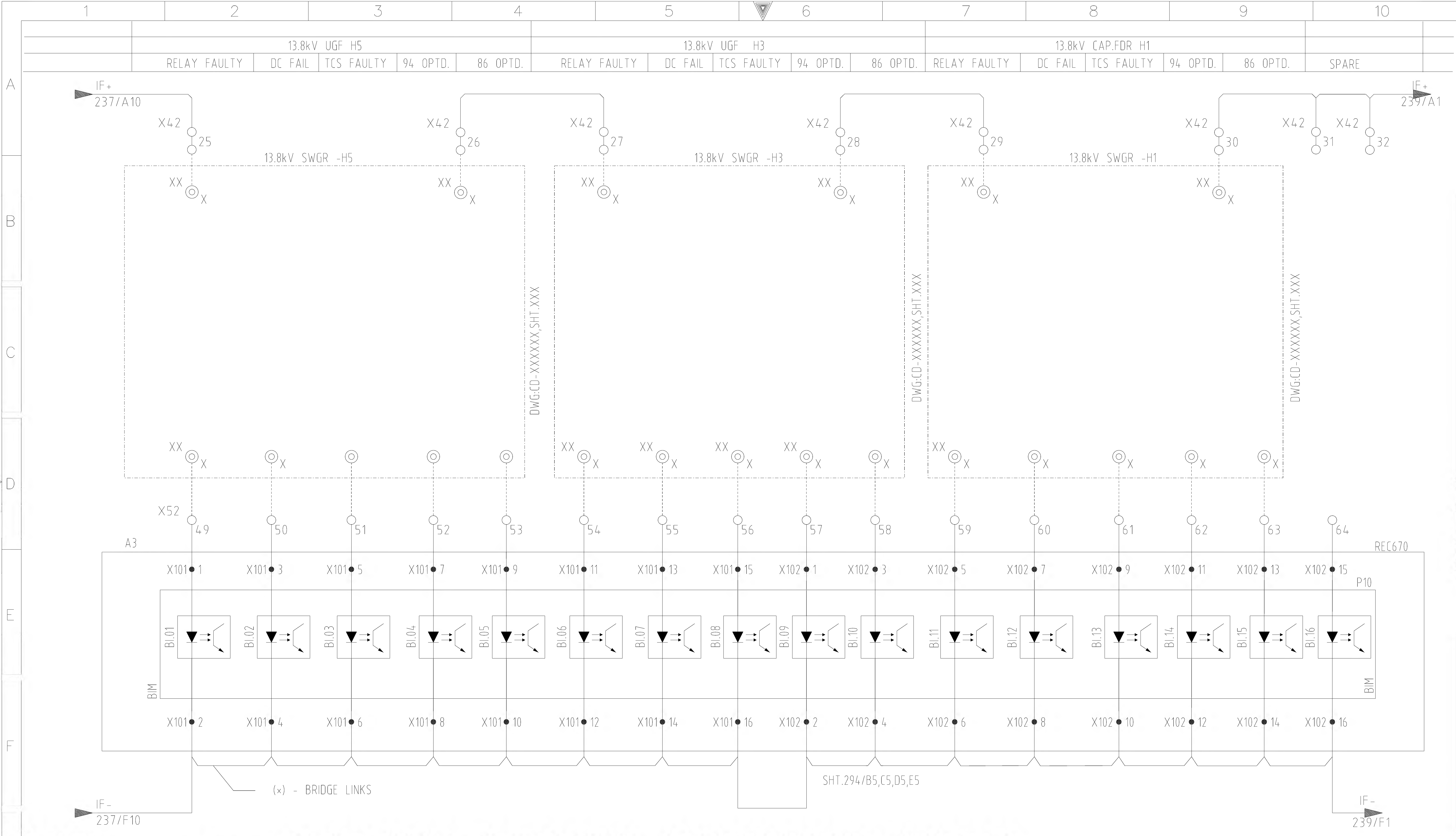
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					DRAWN BY _____ NSK _____ CHECKED BY _____ JKR		SAS INTERFACE PANEL +SAS I/F-3				National Grid sa						
	01	13 48	AS MANUFACTURED		DATE STARTED 15.3.2013 DATE COMPLETED _____		S/S 8709		S-13656		INDEX	PLANT NO.	DRAWING NUMBER		SHEET NO.		REV. NO.
	00	13 20	FOR APPROVAL		OPRG. DEPT. _____ CTPD _____ ENG. DEPT. _____ AUT-PSAC		RIYADH		SAUDI ARABIA		P	C421	CD-323015		SHT CONT.		01
	REV. NO.	DATE	DESCRIPTION												234 235		



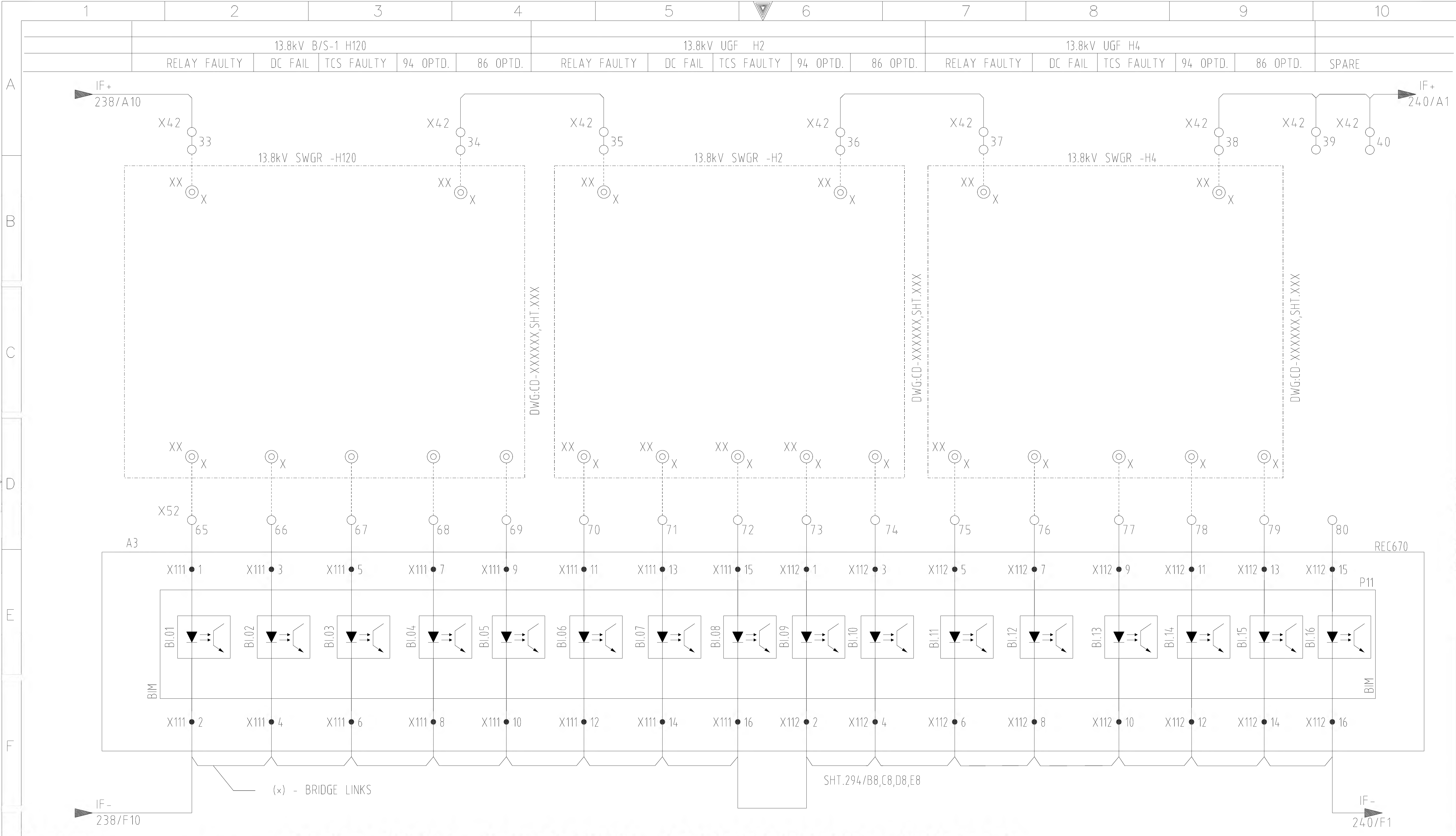
AS-BUILT BY _____ DATE _____			CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		STATION INTERFACE PANEL BINARY INPUTS		<div>نقل الكهرباء</div> <div>الشركة الوطنية لنقل الكهرباء</div> <div>National Grid sa</div>							
DRAWN BY _____ NSK _____ CHECKED BY _____ JKR			DATE STARTED 15.3.2013		DATE COMPLETED _____		SAS INTERFACE PANEL +SAS I/F-3									
OPRG. DEPT. _____ CTPD _____ ENG. DEPT. _____ AUT-PSAC			S/S 8709		S-13656		INDEX		PLANT NO.		DRAWING NUMBER		SHEET NO.		REV. NO.	
REV. NO. _____ DATE _____ DESCRIPTION _____			RIYADH		SAUDI ARABIA		P		C421		CD-323015		SHT 236		CONT. 237	
AS MANUFACTURED FOR APPROVAL													01			



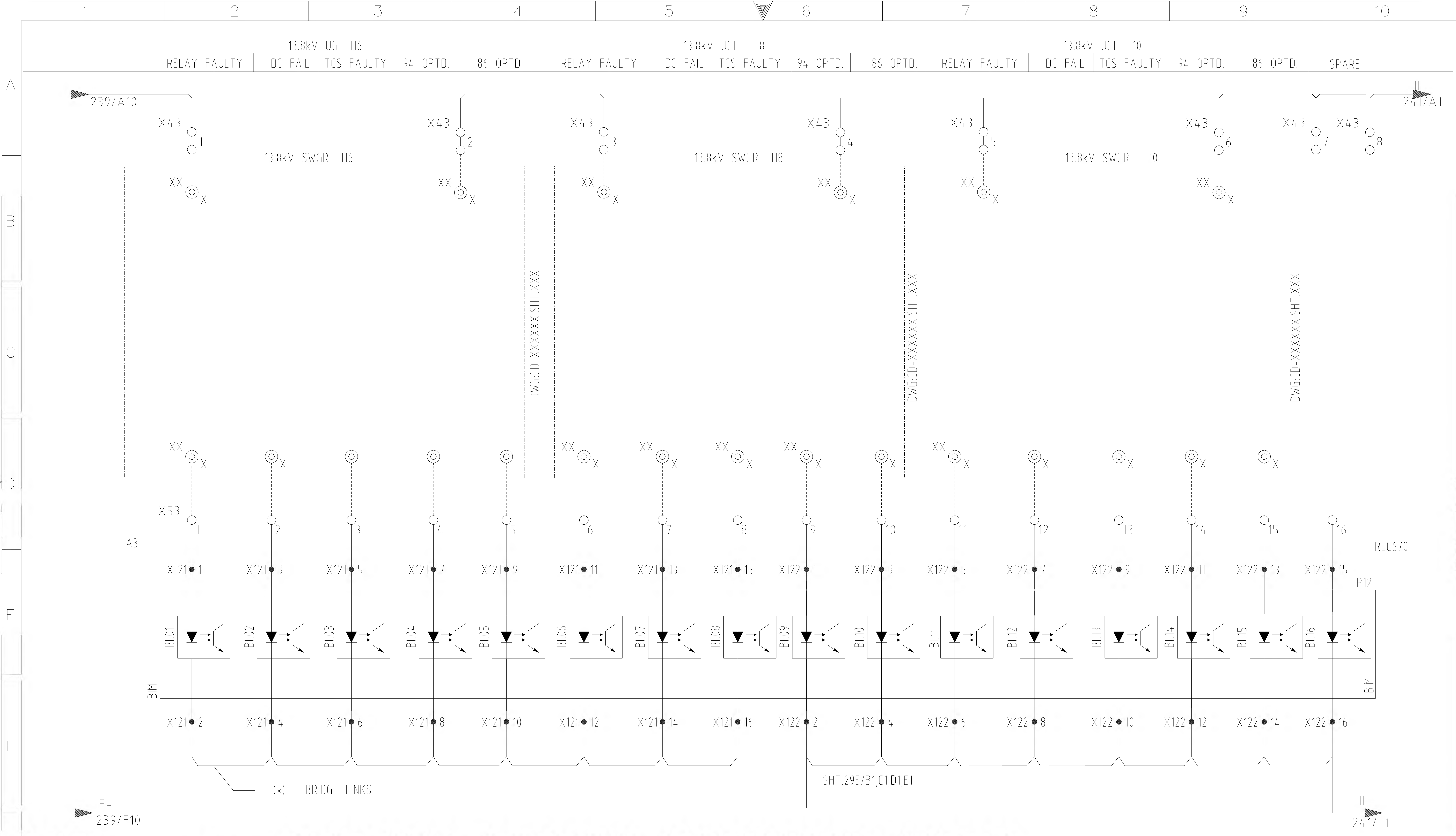
G	AS-BUILT BY _____ DATE _____		CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		STATION INTERFACE PANEL BINARY INPUTS		<div>نقل الكهرباء</div> <div>الشركة الوطنية لنقل الكهرباء</div> <div>National Grid sa</div>						
			DRAWN BY _____ NSK _____ CHECKED BY _____ JKR		SAS INTERFACE PANEL +SAS I/F-3										
	01	13 48	AS MANUFACTURED		DATE STARTED 15.3.2013 DATE COMPLETED _____		S/S 8709 S-13656		INDEX	PLANT NO.	DRAWING NUMBER		SHEET NO.		REV. NO.
	00	13 20	FOR APPROVAL		OPRG. DEPT. _____ CTPD _____ ENG. DEPT. _____ AUT-PSAC		RIYADH SAUDI ARABIA		P	C421	CD-323015		SHT	CONT.	01
	REV. NO.	DATE	DESCRIPTION												



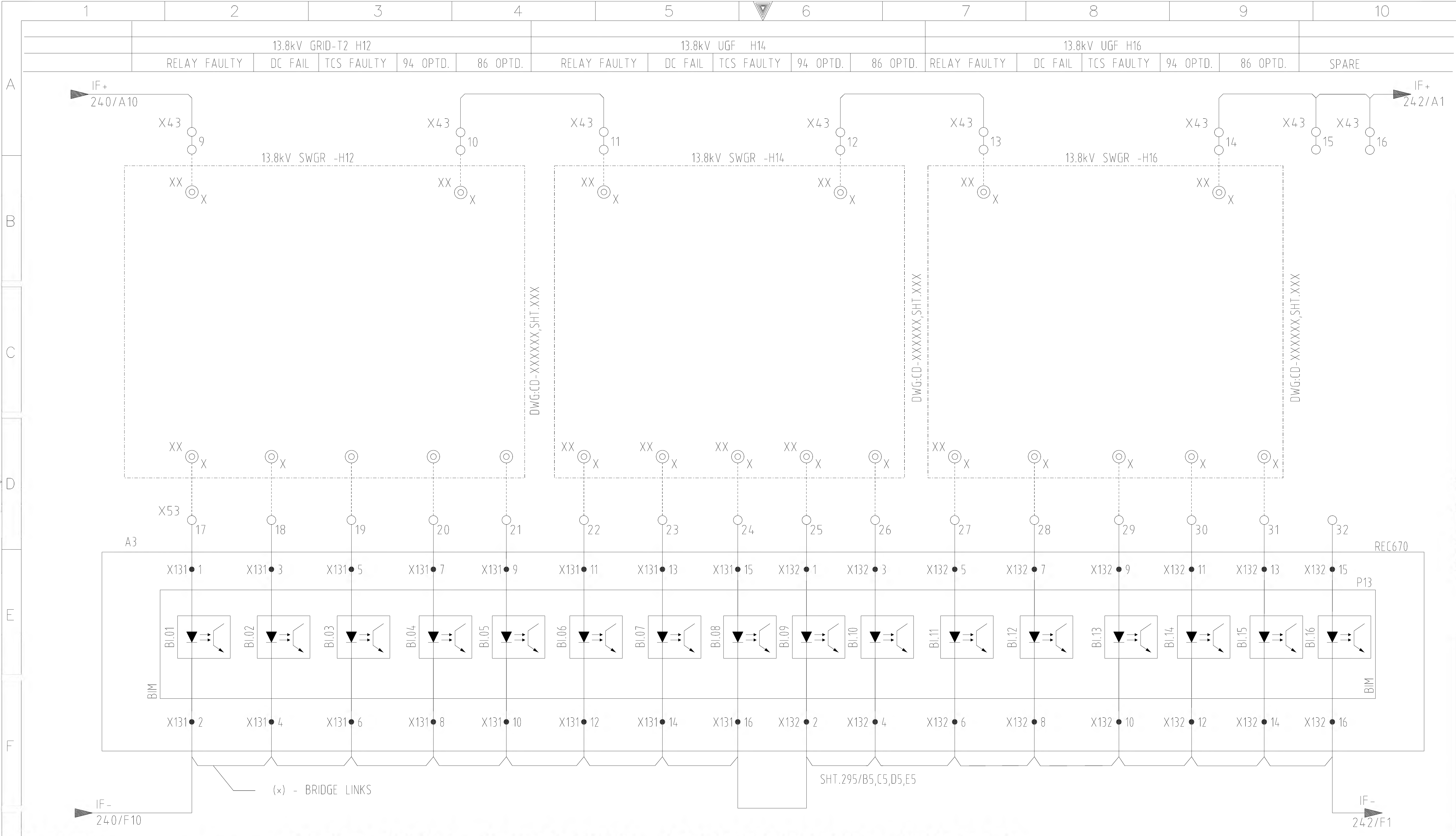
G	AS-BUILT BY _____ DATE _____		CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		STATION INTERFACE PANEL BINARY INPUTS		<div>نقل الكهرباء</div> <div>الشركة الوطنية لنقل الكهرباء</div> <div>National Grid sa</div>							
			DRAWN BY _____ NSK _____ CHECKED BY _____ JKR		SAS INTERFACE PANEL +SAS I/F-3											
	01	13 48	AS MANUFACTURED		DATE STARTED 15.3.2013 DATE COMPLETED _____		S/S 8709		S-13656		INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.		REV. NO.
	00	13 20	FOR APPROVAL		OPRG. DEPT. _____ CTPD _____ ENG. DEPT. _____ AUT-PSAC		RIYADH		SAUDI ARABIA					SHT	CONT.	
	REV. NO.	DATE	DESCRIPTION						P	C421	CD-323015	238	239	01		




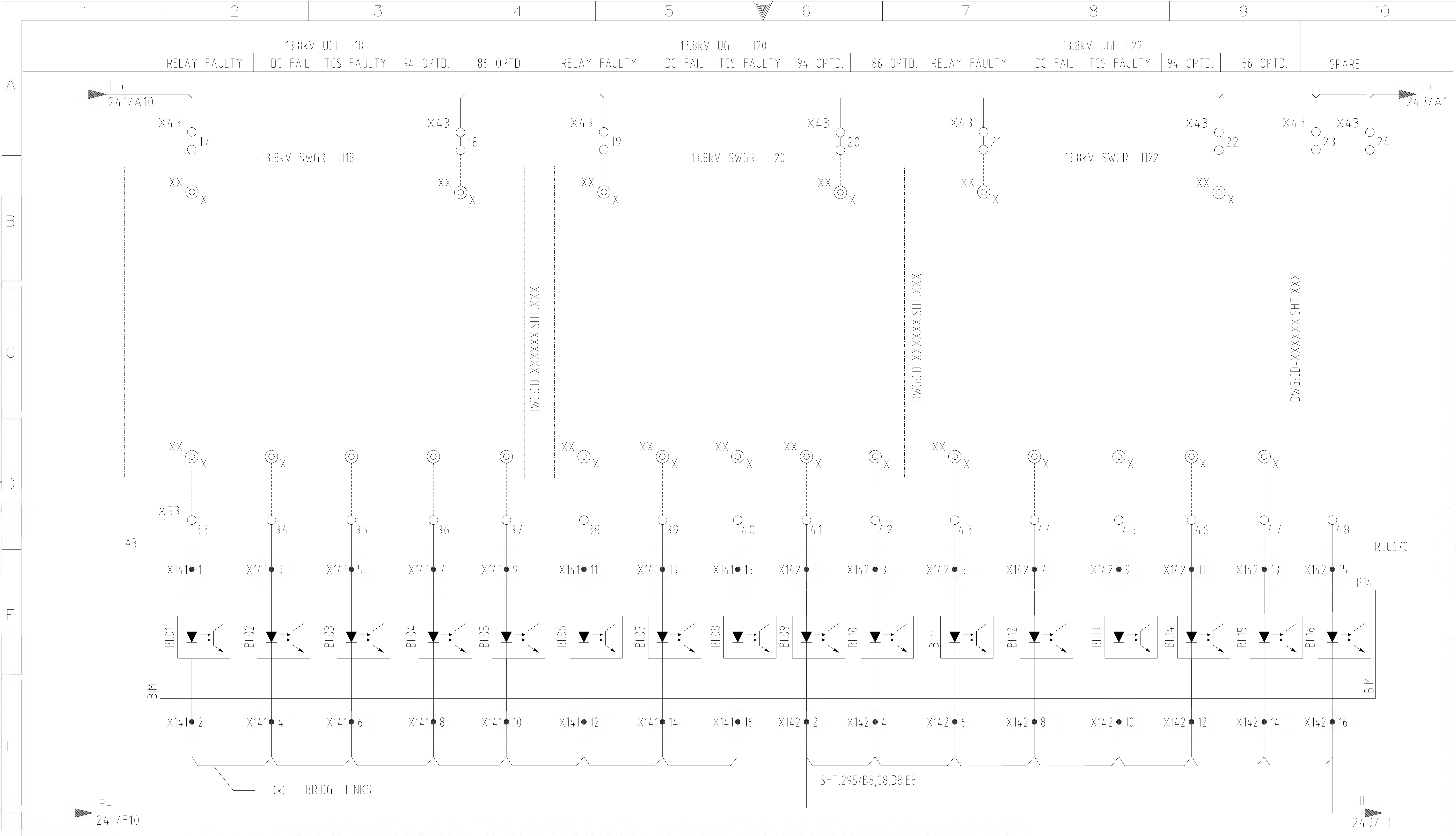
AS-BUILT BY _____ DATE _____			CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		STATION INTERFACE PANEL BINARY INPUTS		<div>نقل الكهرباء</div> <div>الشركة الوطنية لنقل الكهرباء</div> <div>National Grid sa</div>							
			DRAWN BY _____ NSK _____ CHECKED BY _____ JKR				SAS INTERFACE PANEL +SAS I/F-3									
G	01	13 48	AS MANUFACTURED		DATE STARTED 15.3.2013 DATE COMPLETED _____		S/S 8709		S-13656		INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.		REV. NO.
	00	13 20	FOR APPROVAL											SHT	CONT.	
	REV. NO.	DATE	DESCRIPTION		OPRG. DEPT. _____ CTPD _____ ENG. DEPT. _____ AUT-PSAC		RIYADH		SAUDI ARABIA					P	C421	



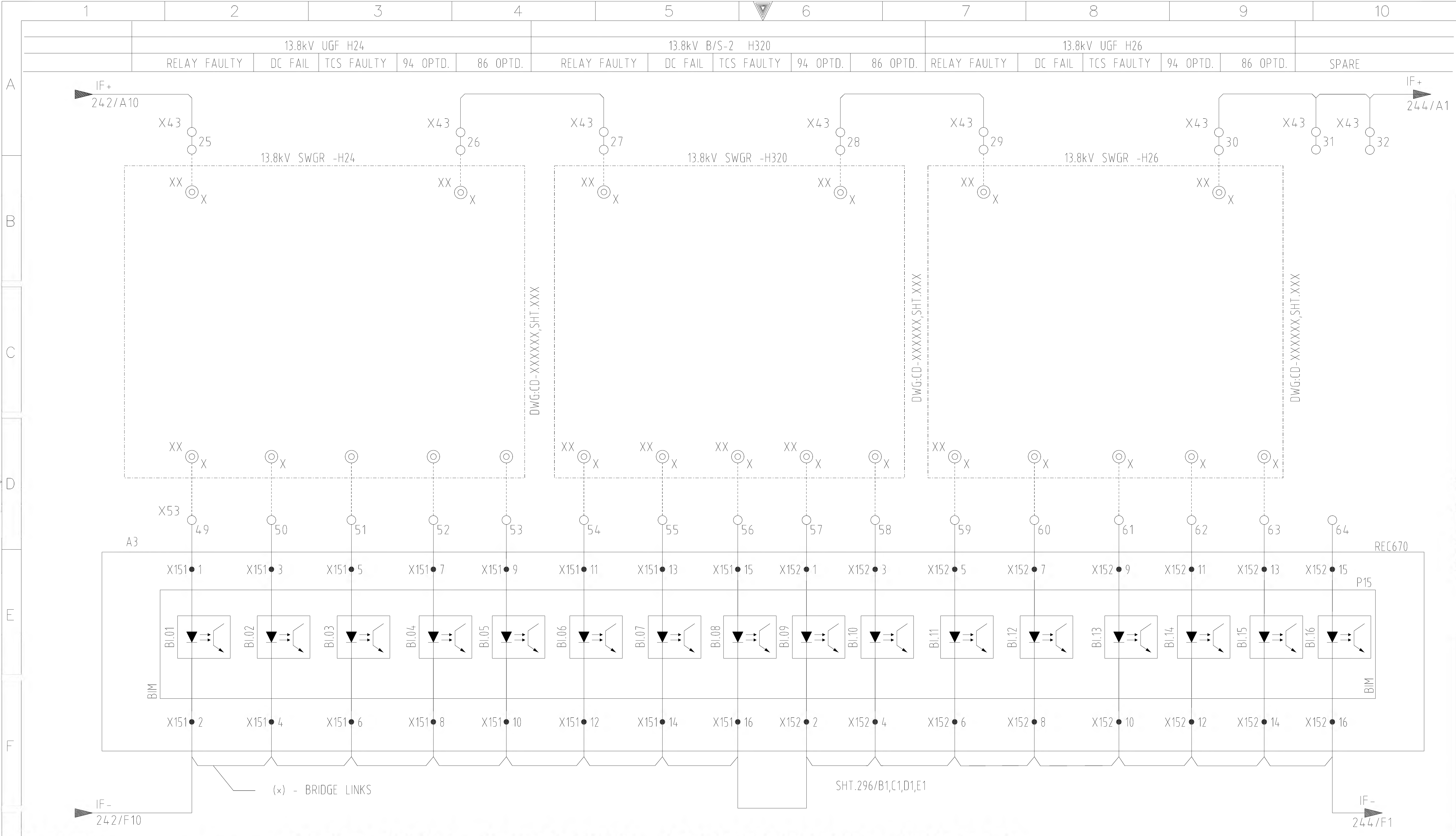
AS-BUILT BY _____ DATE _____			CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		STATION INTERFACE PANEL BINARY INPUTS			<div>نقل الكهرباء</div> <div>الشركة الوطنية لنقل الكهرباء</div> <div>National Grid sa</div>														
DRAWN BY _____ NSK _____ CHECKED BY _____ JKR			DATE STARTED 15.3.2013		DATE COMPLETED _____		S/S 8709								S-13656									
DATE STARTED 15.3.2013			DATE COMPLETED _____		OPRG. DEPT. _____ CTPD _____ ENG. DEPT. _____ AUT-PSAC		RIYADH			SAUDI ARABIA			INDEX P		PLANT NO. C421		DRAWING NUMBER CD-323015		SHEET NO. 240		CONT. 241		REV. NO. 01	
REV. NO. _____			DATE _____		DESCRIPTION _____		AS MANUFACTURED			FOR APPROVAL														



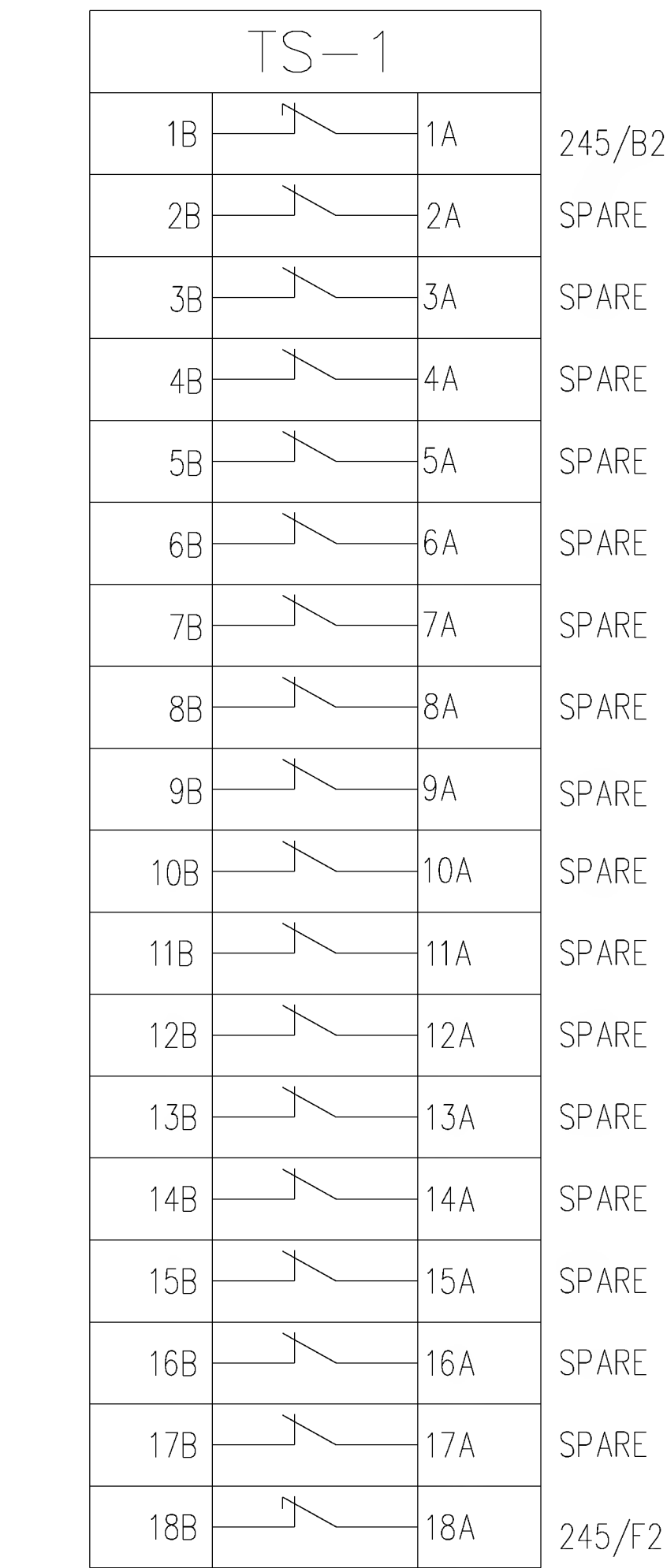
G	AS-BUILT BY _____ DATE _____		CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		STATION INTERFACE PANEL BINARY INPUTS		الشركة الوطنية لنقل الكهرباء					 نقل الكهرباء National Grid sa					
				DRAWN BY _____ NSK _____		CHECKED BY _____ JKR _____		SAS INTERFACE PANEL +SAS I/F-3											
	01	13 48	AS MANUFACTURED		DATE STARTED 15.3.2013		DATE COMPLETED _____		S/S 8709		S-13656		INDEX	PLANT NO.	DRAWING NUMBER		SHEET NO.		REV. NO.
	00	13 20	FOR APPROVAL		OPRG. DEPT. _____ CTPD _____		ENG. DEPT. _____ AUT-PSAC _____		RIYADH		SAUDI ARABIA		P	C421	CD-323015		SHT	CONT.	01
	REV. NO.	DATE	DESCRIPTION														241	242	

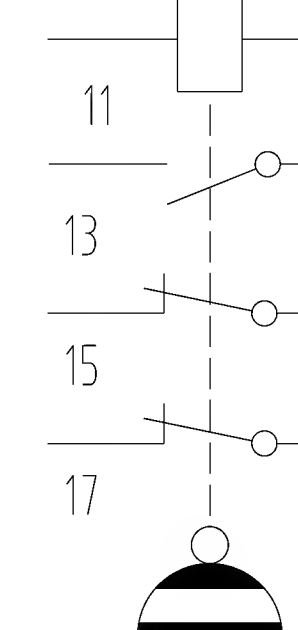


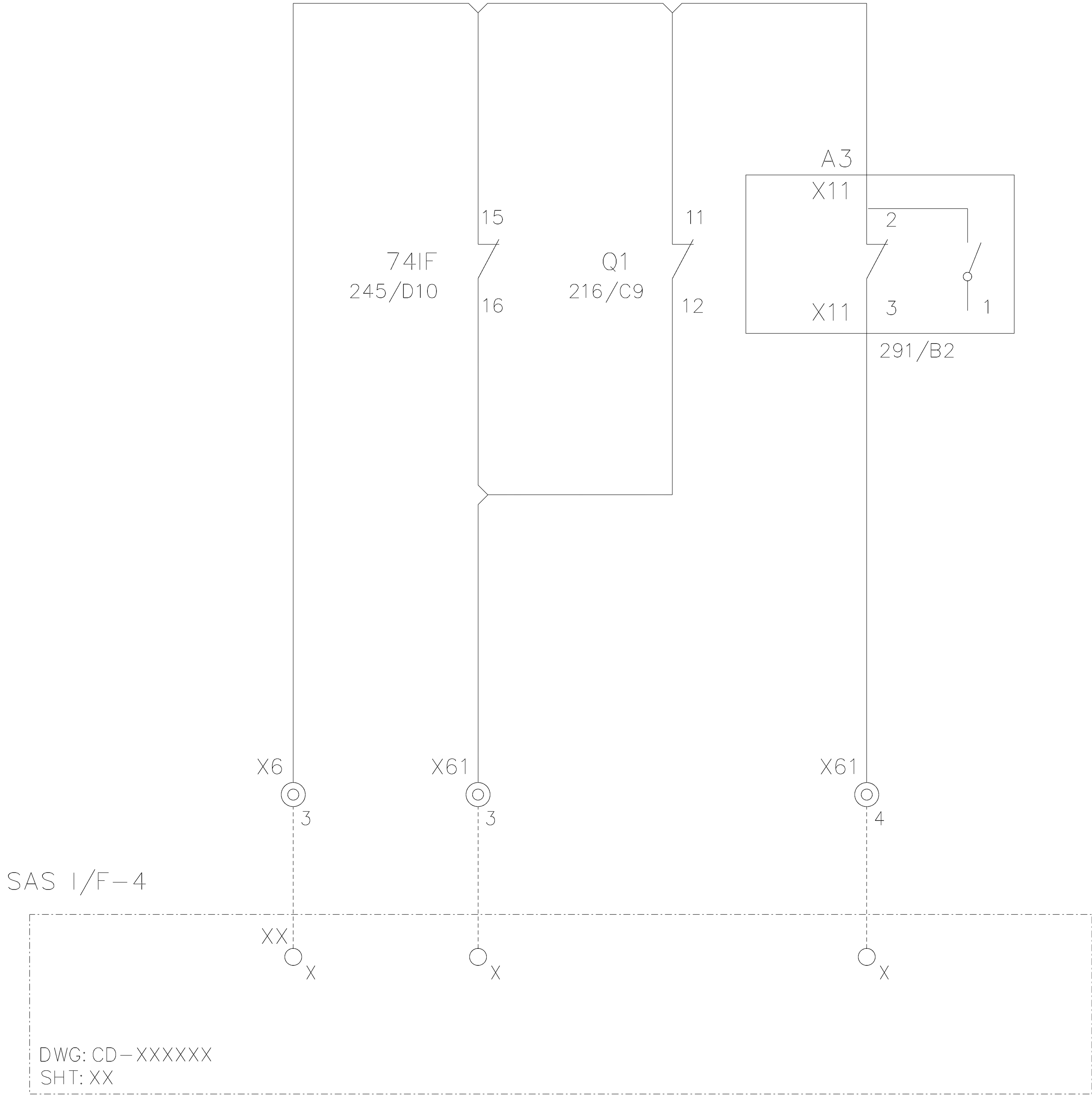
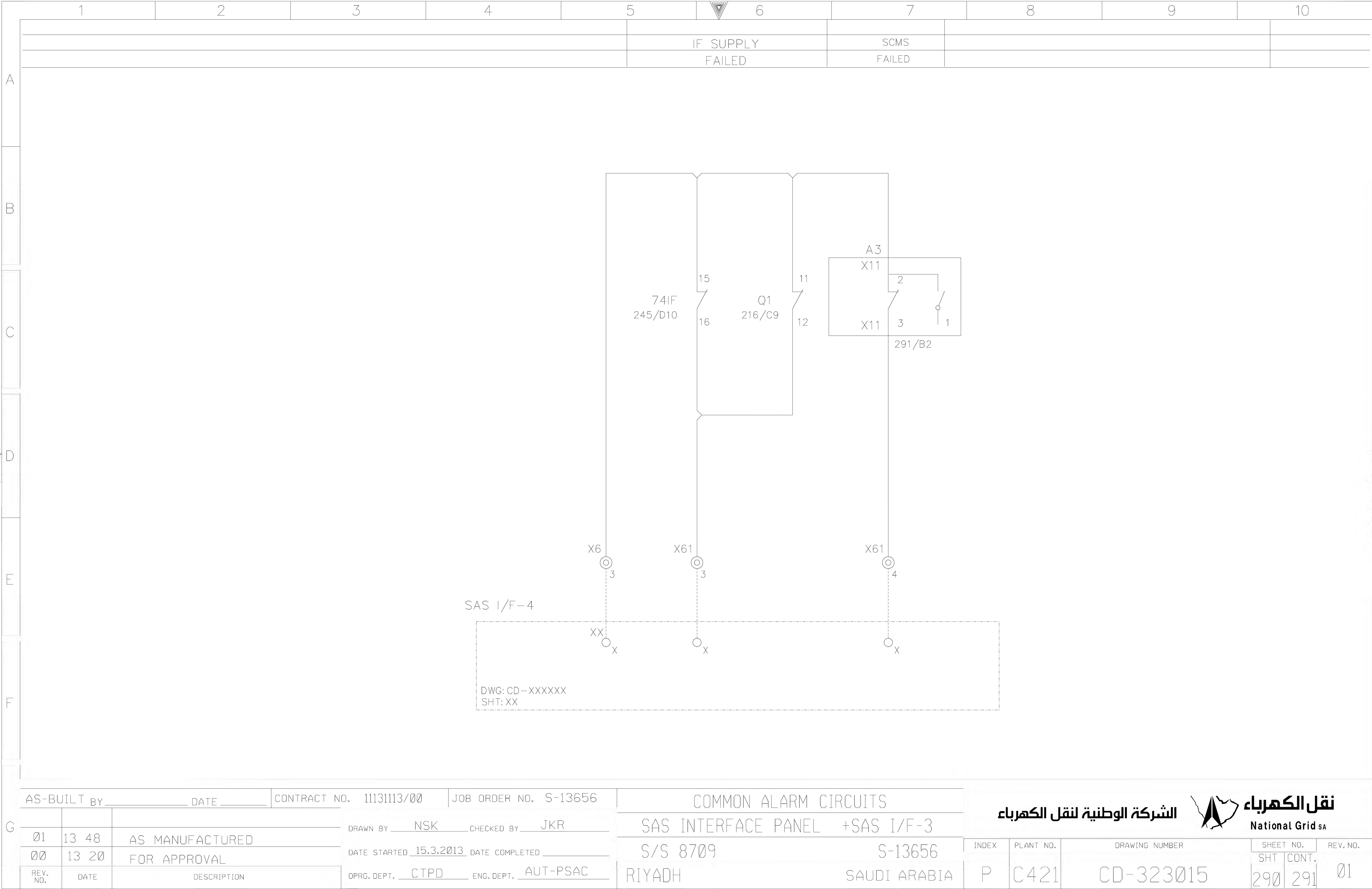
AS-BUILT BY _____ DATE _____			CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		STATION INTERFACE PANEL BINARY INPUTS			<div>نقل الكهرباء</div> <div>الشركة الوطنية لنقل الكهرباء</div> <div>National Grid sa</div>						
G			DRAWN BY _____ NSK _____		CHECKED BY _____ JKR _____		SAS INTERFACE PANEL +SAS I/F-3									
	01	13 48	AS MANUFACTURED		DATE STARTED 15.3.2013		DATE COMPLETED _____		S/S 8709							
	00	13 20	FOR APPROVAL		OPRG. DEPT. _____ CTPD _____		ENG. DEPT. _____ AUT-PSAC _____		RIYADH							
	REV. NO.	DATE	DESCRIPTION				SAUDI ARABIA		INDEX	PLANT NO.	DRAWING NUMBER		SHEET NO.		REV. NO.	
									P	C421	CD-323015		SHT	CONT.	01	
													242	243		



AS-BUILT BY _____ DATE _____			CONTRACT NO. 11131113/00			JOB ORDER NO. S-13656			STATION INTERFACE PANEL BINARY INPUTS			الشركة الوطنية لنقل الكهرباء National Grid sa		
DRAWN BY _____ NSK _____			CHECKED BY _____ JKR _____			DATE STARTED 15.3.2013 DATE COMPLETED _____			SAS INTERFACE PANEL +SAS I/F-3					
OPRG. DEPT. _____ CTPD _____			ENG. DEPT. _____ AUT-PSAC _____			S/S 8709			S-13656			INDEX		
RIYADH			SAUDI ARABIA			P			C421			DRAWING NUMBER		
CD-323015			SHEET NO.			REV. NO.			SHT			CONT.		
243			244			01								

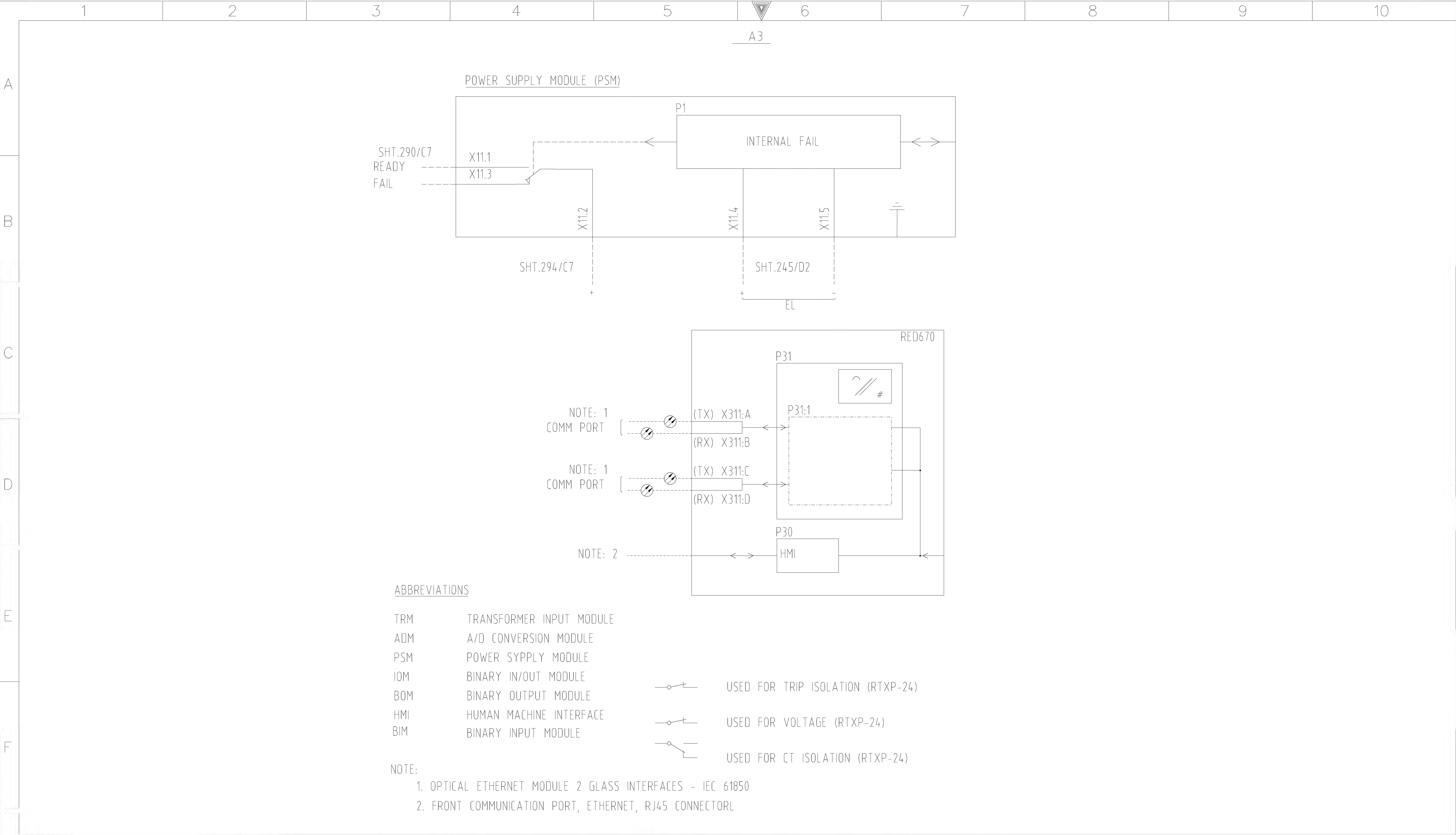



74IF	
	245/E7
	S/PARE
	290/D4
	S/PARE



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AS-BUILT BY _____ DATE _____			CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		BLOCK REFERENCE				الشركة الوطنية لنقل الكهرباء						نقل الكهرباء				
					DRAWN BY <u>NSK</u> CHECKED BY <u>JKR</u>		SAS INTERFACE PANEL +SAS I/F-3										National Grid sa				
Ø1			13 48		AS MANUFACTURED		S/S 8709				S-13656		INDEX	PLANT NO.	DRAWING NUMBER		SHEET NO.	REV. NO.			
ØØ			13 20		FOR APPROVAL		DATE STARTED <u>15.3.2013</u> DATE COMPLETED _____										SHT	CONT.			
REV. NO.			DATE		DESCRIPTION		OPRG. DEPT. <u>CTPD</u> ENG. DEPT. <u>AUT-PSAC</u>				RIYADH		SAUDI ARABIA		P	C421	CD-323015		291	292	Ø1
<div><div></div><div></div><div></div></div>																					
NG/D2-D (2012/01)																					
<div><div>DMS</div><div>VECTOR</div><div>NGD200</div></div>																					

A

B

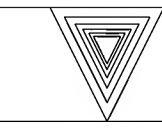
C

D

E

F

G



A3

BINARY INPUT CARD

A3				BIM P3	
				REC670	
				LOCATION=P3	PLANT ADAPTED CONFIGURATION
SHT.231/D1 TO D10	+ -----	X31			
	- -----	1	Bl.01	//	
	+ -----	2			
	- -----	3	Bl.02	//	
	+ -----	4			
	- -----	5	Bl.03	//	
	+ -----	6			
	- -----	7	Bl.04	//	
	+ -----	8			
	- -----	9	Bl.05	//	
	+ -----	10			
	- -----	11	Bl.06	//	
	+ -----	12			
	- -----	13	Bl.07	//	
	+ -----	14			
	- -----	15	Bl.08	//	
	- -----	16			
SHT.232/D1 TO D10	+ -----	X32			
	- -----	1	Bl.09	//	
	+ -----	2			
	- -----	3	Bl.10	//	
	+ -----	4			
	- -----	5	Bl.11	//	
	+ -----	6			
	- -----	7	Bl.12	//	
	+ -----	8			
	- -----	9	Bl.13	//	
	+ -----	10			
	- -----	11	Bl.14	//	
	+ -----	12			
	- -----	13	Bl.15	//	
	+ -----	14			
	- -----	15	Bl.16	//	
	- -----	16			

A3				BIM P4	
				REC670	
				LOCATION=P4	PLANT ADAPTED CONFIGURATION
SHT.232/D1 TO D10	+ -----	X41			
	- -----	1	Bl.01	//	
	+ -----	2			
	- -----	3	Bl.02	//	
	+ -----	4			
	- -----	5	Bl.03	//	
	+ -----	6			
	- -----	7	Bl.04	//	
	+ -----	8			
	- -----	9	Bl.05	//	
	+ -----	10			
	- -----	11	Bl.06	//	
	+ -----	12			
	- -----	13	Bl.07	//	
	+ -----	14			
	- -----	15	Bl.08	//	
	- -----	16			
SHT.233/D1 TO D10	+ -----	X42			
	- -----	1	Bl.09	//	
	+ -----	2			
	- -----	3	Bl.10	//	
	+ -----	4			
	- -----	5	Bl.11	//	
	+ -----	6			
	- -----	7	Bl.12	//	
	+ -----	8			
	- -----	9	Bl.13	//	
	+ -----	10			
	- -----	11	Bl.14	//	
	+ -----	12			
	- -----	13	Bl.15	//	
	+ -----	14			
	- -----	15	Bl.16	//	
	- -----	16			

A3				BIM P5	
				REC670	
				LOCATION=P5	PLANT ADAPTED CONFIGURATION
SHT.233/D1 TO D10	+ -----	X51			
	- -----	1	Bl.01	//	
	+ -----	2			
	- -----	3	Bl.02	//	
	+ -----	4			
	- -----	5	Bl.03	//	
	+ -----	6			
	- -----	7	Bl.04	//	
	+ -----	8			
	- -----	9	Bl.05	//	
	+ -----	10			
	- -----	11	Bl.06	//	
	+ -----	12			
	- -----	13	Bl.07	//	
	+ -----	14			
	- -----	15	Bl.08	//	
	- -----	16			
SHT.233/D1 TO D10	+ -----	X52			
	- -----	1	Bl.09	//	
	+ -----	2			
	- -----	3	Bl.10	//	
	+ -----	4			
	- -----	5	Bl.11	//	
	+ -----	6			
	- -----	7	Bl.12	//	
	+ -----	8			
	- -----	9	Bl.13	//	
	+ -----	10			
	- -----	11	Bl.14	//	
	+ -----	12			
	- -----	13	Bl.15	//	
	+ -----	14			
	- -----	15	Bl.16	//	
	- -----	16			

AS-BUILT BY _____ DATE _____ CONTRACT NO. 11131113/00 JOB ORDER NO. S-13656

01	13 48	AS MANUFACTURED
00	13 20	FOR APPROVAL
REV. NO.	DATE	DESCRIPTION

DRAWN BY NSK CHECKED BY JKR
DATE STARTED 15.3.2013 DATE COMPLETED _____
OPRG. DEPT. CTPD ENG. DEPT. AUT-PSAC

BLOCK REFERENCE

SAS INTERFACE PANEL +SAS I/F-3

S/S 8709

S-13656

RIYADH

SAUDI ARABIA

الشركة الوطنية لنقل الكهرباء



INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.		REV. NO.
			SHT	CONT.	
P	C421	CD-323015	292	293	01

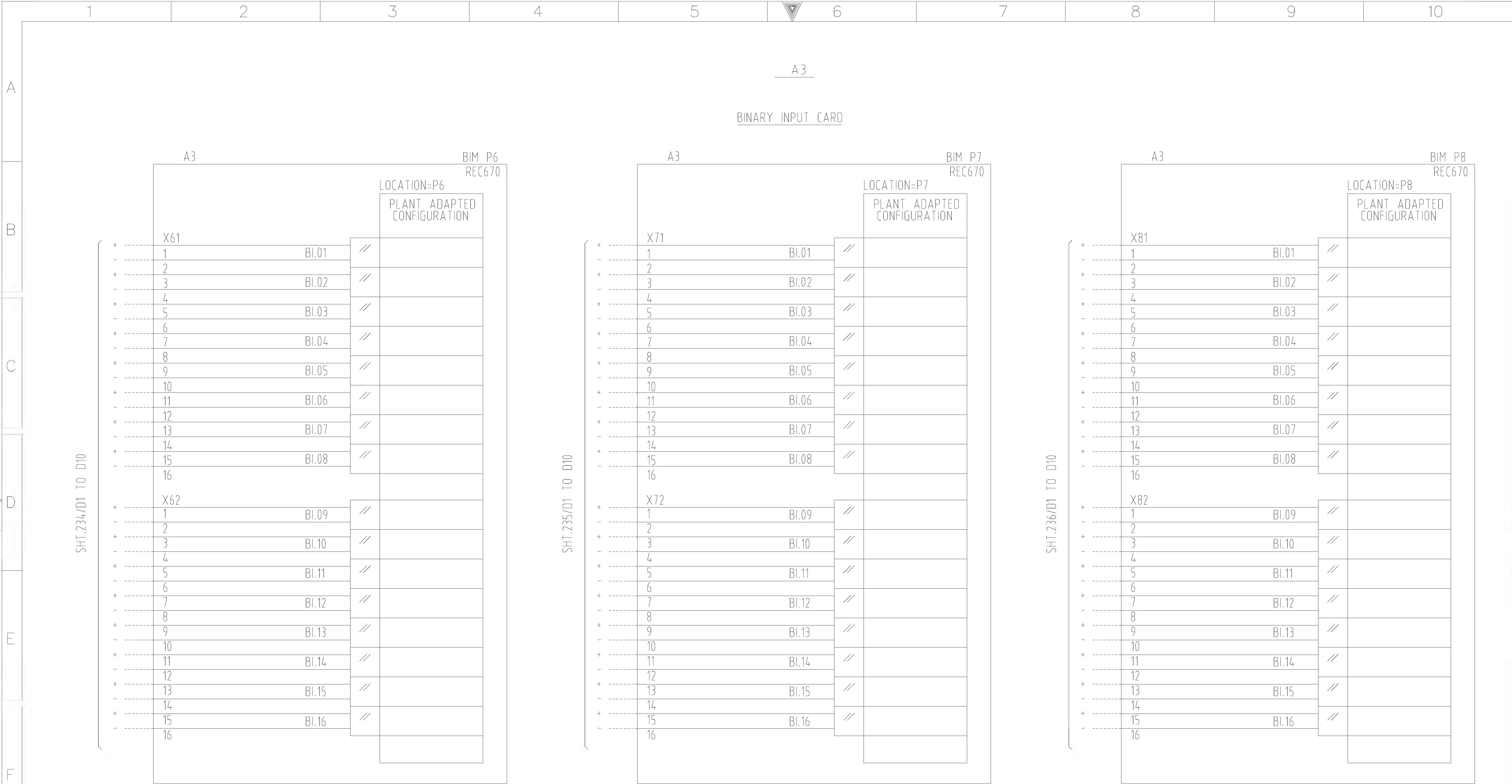
NG/D2-D (2012/01)

DMS

VECTOR

NGD200

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A

B

C

D

E

F

SHT.237/D1 TO D10

SHT.238/D1 TO D10

SHT.239/D1 TO D10

G

AS-BUILT BY _____ DATE _____			CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		BLOCK REFERENCE			<div>الشركة الوطنية لنقل الكهرباء</div> <div>نقل الكهرباء</div> <div>National Grid sa</div>		
01 13 48 AS MANUFACTURED			DRAWN BY NSK CHECKED BY JKR		SAS INTERFACE PANEL +SAS I/F-3							
00 13 20 FOR APPROVAL			DATE STARTED 15.3.2013 DATE COMPLETED _____		S/S 8709 S-13656							
REV. NO. DATE DESCRIPTION			OPRG. DEPT. CTPD ENG. DEPT. AUT-PSAC		RIYADH SAUDI ARABIA			INDEX P	PLANT NO. C421	DRAWING NUMBER CD-323015	SHEET NO. SHT 294 CONT. 295	REV. NO. 01

A

B

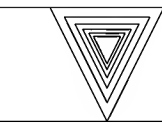
C

D

E

F

G



A3

BINARY INPUT CARD

A3

BIM P12
REC670

LOCATION=P12

PLANT ADAPTED
CONFIGURATION

SHT.240/D1 TO D10

+ -	X121			
-	1	Bl.01	//	
+ -	2			
-	3	Bl.02	//	
+ -	4			
-	5	Bl.03	//	
+ -	6			
-	7	Bl.04	//	
+ -	8			
-	9	Bl.05	//	
+ -	10			
-	11	Bl.06	//	
+ -	12			
-	13	Bl.07	//	
+ -	14			
-	15	Bl.08	//	
-	16			
+ -	X122			
-	1	Bl.09	//	
+ -	2			
-	3	Bl.10	//	
+ -	4			
-	5	Bl.11	//	
+ -	6			
-	7	Bl.12	//	
+ -	8			
-	9	Bl.13	//	
+ -	10			
-	11	Bl.14	//	
+ -	12			
-	13	Bl.15	//	
+ -	14			
-	15	Bl.16	//	
-	16			

A3

BIM P13
REC670

LOCATION=P13

PLANT ADAPTED
CONFIGURATION

SHT.241/D1 TO D10

+ -	X131			
-	1	Bl.01	//	
+ -	2			
-	3	Bl.02	//	
+ -	4			
-	5	Bl.03	//	
+ -	6			
-	7	Bl.04	//	
+ -	8			
-	9	Bl.05	//	
+ -	10			
-	11	Bl.06	//	
+ -	12			
-	13	Bl.07	//	
+ -	14			
-	15	Bl.08	//	
-	16			
+ -	X132			
-	1	Bl.09	//	
+ -	2			
-	3	Bl.10	//	
+ -	4			
-	5	Bl.11	//	
+ -	6			
-	7	Bl.12	//	
+ -	8			
-	9	Bl.13	//	
+ -	10			
-	11	Bl.14	//	
+ -	12			
-	13	Bl.15	//	
+ -	14			
-	15	Bl.16	//	
-	16			

A3

BIM P14
REC670

LOCATION=P14

PLANT ADAPTED
CONFIGURATION

SHT.242/D1 TO D10

+ -	X141			
-	1	Bl.01	//	
+ -	2			
-	3	Bl.02	//	
+ -	4			
-	5	Bl.03	//	
+ -	6			
-	7	Bl.04	//	
+ -	8			
-	9	Bl.05	//	
+ -	10			
-	11	Bl.06	//	
+ -	12			
-	13	Bl.07	//	
+ -	14			
-	15	Bl.08	//	
-	16			
+ -	X142			
-	1	Bl.09	//	
+ -	2			
-	3	Bl.10	//	
+ -	4			
-	5	Bl.11	//	
+ -	6			
-	7	Bl.12	//	
+ -	8			
-	9	Bl.13	//	
+ -	10			
-	11	Bl.14	//	
+ -	12			
-	13	Bl.15	//	
+ -	14			
-	15	Bl.16	//	
-	16			

AS-BUILT BY _____ DATE _____ CONTRACT NO. 11131113/00 JOB ORDER NO. S-13656

01	13 48	AS MANUFACTURED
00	13 20	FOR APPROVAL
REV. NO.	DATE	DESCRIPTION

DRAWN BY NSK CHECKED BY JKR
DATE STARTED 15.3.2013 DATE COMPLETED _____
OPRG. DEPT. CTPD ENG. DEPT. AUT-PSAC

BLOCK REFERENCE

SAS INTERFACE PANEL +SAS I/F-3

S/S 8709

S-13656

RIYADH

SAUDI ARABIA

الشركة الوطنية لنقل الكهرباء



INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.	REV. NO.
P	C421	CD-323015	SHT 295 CONT. 296	01

NG/D2-D (2012/01)

DMS

VECTOR

NGD200

A

B

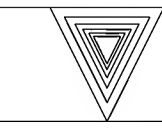
C

D

E

F

G



A3

BINARY INPUT CARD

A3

BIM P15
REC670

LOCATION=P15

PLANT ADAPTED
CONFIGURATION

SHT.243/D1 TO D10

+	-----	X151			
-	-----	1	Bl.01	//	
+	-----	2			
-	-----	3	Bl.02	//	
+	-----	4			
-	-----	5	Bl.03	//	
+	-----	6			
-	-----	7	Bl.04	//	
+	-----	8			
-	-----	9	Bl.05	//	
+	-----	10			
-	-----	11	Bl.06	//	
+	-----	12			
-	-----	13	Bl.07	//	
+	-----	14			
-	-----	15	Bl.08	//	
+	-----	16			
+	-----	X152			
-	-----	1	Bl.09	//	
+	-----	2			
-	-----	3	Bl.10	//	
+	-----	4			
-	-----	5	Bl.11	//	
+	-----	6			
-	-----	7	Bl.12	//	
+	-----	8			
-	-----	9	Bl.13	//	
+	-----	10			
-	-----	11	Bl.14	//	
+	-----	12			
-	-----	13	Bl.15	//	
+	-----	14			
-	-----	15	Bl.16	//	
+	-----	16			

A3

BIM P16
REC670

LOCATION=P16

PLANT ADAPTED
CONFIGURATION

SHT.244/D1 TO D10

+	-----	X161			
-	-----	1	Bl.01	//	
+	-----	2			
-	-----	3	Bl.02	//	
+	-----	4			
-	-----	5	Bl.03	//	
+	-----	6			
-	-----	7	Bl.04	//	
+	-----	8			
-	-----	9	Bl.05	//	
+	-----	10			
-	-----	11	Bl.06	//	
+	-----	12			
-	-----	13	Bl.07	//	
+	-----	14			
-	-----	15	Bl.08	//	
+	-----	16			
+	-----	X162			
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+	-----	2			
-	-----	3	Bl.10	//	
+	-----	4			
-	-----	5	Bl.11	//	
+	-----	6			
-	-----	7	Bl.12	//	
+	-----	8			
-	-----	9	Bl.13	//	
+	-----	10			
-	-----	11	Bl.14	//	
+	-----	12			
-	-----	13	Bl.15	//	
+	-----	14			
-	-----	15	Bl.16	//	
+	-----	16			

AS-BUILT BY _____ DATE _____ CONTRACT NO. 11131113/00 JOB ORDER NO. S-13656

01	13 48	AS MANUFACTURED
00	13 20	FOR APPROVAL
REV. NO.	DATE	DESCRIPTION

DRAWN BY NSK CHECKED BY JKR
DATE STARTED 15.3.2013 DATE COMPLETED _____
OPRG. DEPT. CTPD ENG. DEPT. AUT-PSAC

BLOCK REFERENCE

SAS INTERFACE PANEL +SAS I/F-3

S/S 8709

S-13656

RIYADH

SAUDI ARABIA

الشركة الوطنية لنقل الكهرباء



نقل الكهرباء
National Grid sa

INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.		REV. NO.
P	C421	CD-323015	SHT	CONT.	01
			296	301	

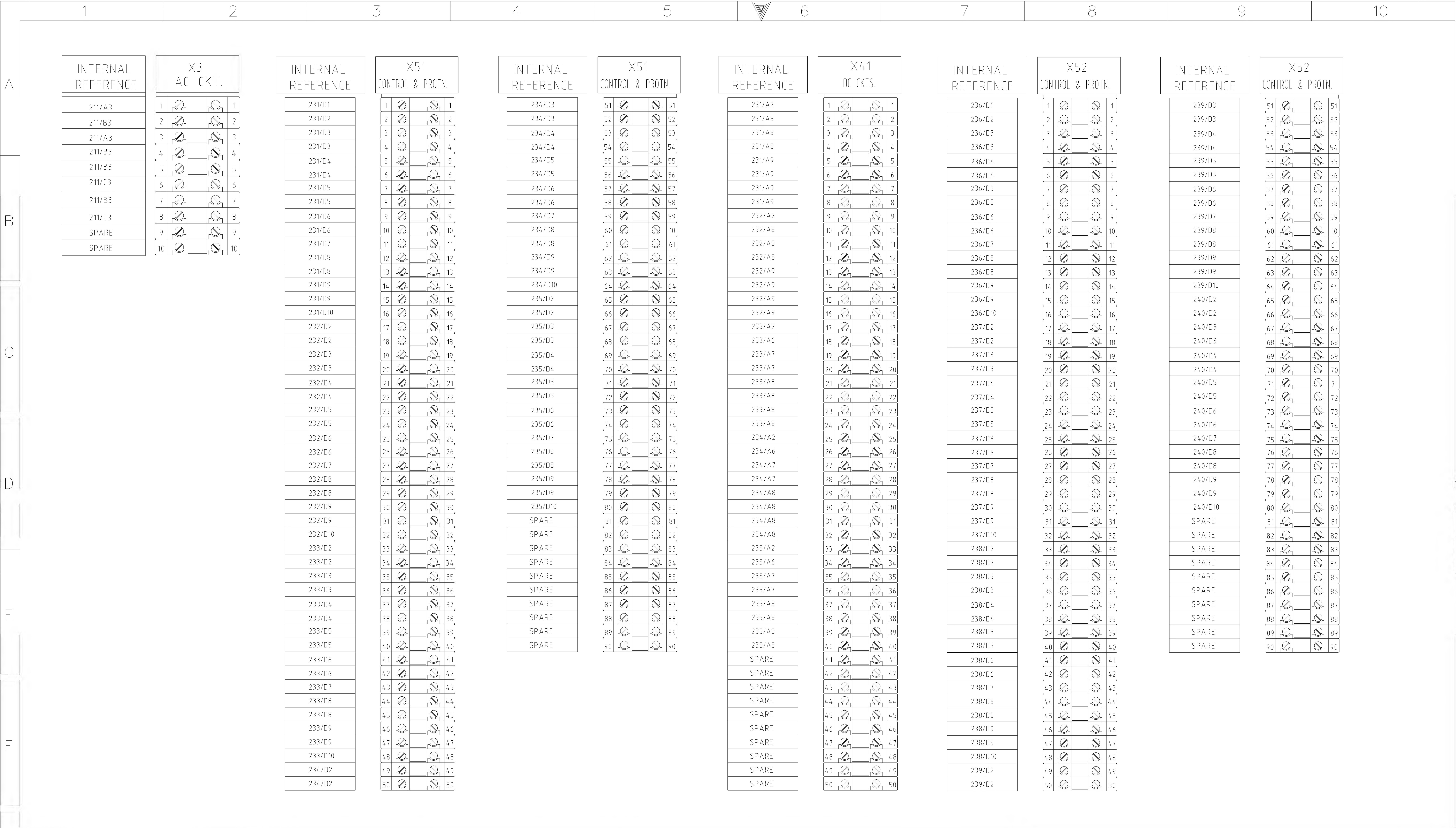


NG/D2-D (2012/01)

DMS

VECTOR

NGD200



AS-BUILT BY _____ DATE _____

CONTRACT NO. 11131113/00

JOB ORDER NO. S-13656

01

13 48

AS MANUFACTURED

00

13 20

FOR APPROVAL

REV. NO.

DATE

DESCRIPTION

DRAWN BY _____ NSK _____ CHECKED BY _____ JKR _____

DATE STARTED 15.3.2013 DATE COMPLETED _____

OPRG. DEPT. _____ CTPD _____ ENG. DEPT. _____ AUT-PSAC _____

TERMINAL BLOCK REFERENCE

SAS INTERFACE PANEL +SAS I/F-3

S/S 8709

SAUDI ARABIA

الشركة الوطنية لنقل الكهرباء



National Grid sa

INDEX

PLANT NO.

DRAWING NUMBER

SHEET NO.

REV. NO.

P

C421

CD-323015

301

01

